ANATOMY

1. In the advancement of surgery of shoulder joint, one muscle was not given much importance earlier but now came in picture, this forgotten muscle of rotator cuff is

a. Subscapularis
b. Supraspinatus
c. Infraspinatus
d. Teres minor

Answer: (a) Subscapularis

Reference:

Explanation:Musculotendinous cuff of shoulder is a fibrous sheath formed by the four flattened tendons which blend with the capsule of shoulder joint and strengthen it. Muscles which form the cuff arise from scapula and are inserted into the lesser and greater tubercles of humerus. They are subscapularis, supaspintaous, infraspinatus and teres minor. There tendons while crossing the shoulder joint become flattened and blend with each other on one end and with capsule of the joint on the other end, before reaching their points of insertion.Cuff gives strength to the capsule of shoulder joint all around except inferiorly. That is why dislocation of humerusoccur most commonly in a down ward insertion.

2. Stuctures at anorectal junction all except

a. External sphincter
b. Internal sphincter
c. Anococcygeal raphe
d. Puborectalis

Answer (c)Anococcygealraphae

Reference: BDC 2nd vol,5/e, pg.414

Explanation: Anorectal ring is a muscular ring present at the anorectal junction. It is formed by the fusion of the puborectalis, uppermost fibers of external sphincter and internal sphincter. Surgical division of anorectal ring results in rectal incontinence.

Anococcygeal ligament or anococcygeal raphe is a multilayer musculotendinous structure between anal canal & hip of coccyx. It is attached anteriorly to the superficial part of external anal sphincter i.e. middle part of external anal sphincter which lies below to deep part of external anal sphincter at the anorectal junction present deep part of external anal sphincter.

3. Structure not present at floor of third ventricle-

a. Optic stalk
b. Third nerve
c. Infundibulum
d. Mamillary body

Answer: (b) Third nerve (Occulo motor N.)

Reference: BDC 3rdvol, 5/e, pg. 428

Explanation: Third ventricle is a median cleft b/w two thalami. Embryologically it represents the cavity of diencephalon.

Communication :Antero superiorly, on each side it communicates with the lateral ventricle through the interventriclar foramen (or Foramen of Monro). Postero inferiorly it communicates with the fourth ventricle through the Cerebral Aqueduct.

Boundaries:

Anterior wall –

i. Lamina terminalis
ii. Anterior commissure
iii. Anterior columns of fornix

Posterior wall –

i. Pineal body
ii. Post commissure
iii. Cerebral aqueduct

Roof -

i. Ependymal liningof the under surface of telachoroidea of third ventricle

Floor –

i. Optic chiasma
ii. Tubercinerium
iii. Infndibulum (Pituitary stalk)
iv. Mamillary bodies
v. Posterior perforated substance
vi. Tegmentum of the mid rain

Lateral wall –

i. Medial surface of thalamus
ii. Hypothalamus
iii. Hypothalamic sulcus

Occulomotor N arises at the medial end of crus cerebri of mid brain.So it is not present at the floor of IIIrd ventricle

4. Which among the following forma a complete cartilaginous ring around tracheobronchial tree-
a. Cricoidcartilage
b. Epiglottis
c. Cuneiformcartilage
d. Thyroid cartilage

Answer (a) Cricoids cartilage

Ref: BDC 3rdvol, 5/e pg. 238

Explanation: Cricoid cartilage is shaped like a ring. It encircles the larynx below the thyroid cartilage. The ring has a narrow anterior part called the arch and a broad posterior part called the lamina. Lamina projects upwards behind the thyroid cartilage and articulates superiorly with the arytenoids cartilages.

Larynx contains nine cartilages out of which 3 are paired & 3 are unpaired.

Unpaired cartilages

i. Thyroid – V shaped
ii. Cricoids – Ring shaped
iii. Epiglottic – Leaf shaped

Paired cartilages

i. Arytenoids – Pyramid shaped
ii. Corniculate – Small conical shape
iii. Cuneiform – Small rod shape

5. Father of neuro-otology was
a. William House
b. John shea
c. Joseph lampert
d. Not recalled

Answer: (a) William F. HouseInMemorian:

Reference: Wiliam F. House, D.D.S. M.D. the “Father of Neurotology” 1923 – 2012

Explanation: Berlinger, Karen Otology and Neurotology 34 (3): 386 – 387 April 2013

Otology &Neurotology is the name of journal. In which this article has been published available on internet.

6. Vaginal endothelium is derived from:
a. Endoderm of urogenital sinus
b. Mesoderm of urogenital sinus
c. Endoderm of genital ridge
d. Mesoderm of genital ridge

Ans: A, Endoderm of urogenital sinus

Ref: BDC 2ndvol, 5/e pg. 397

Exp: As the fused Müllerian or paramesonephric ducts which form the uterovaginal canal open into the

definitive urogenital sinus, the endoderm bulges to form the Müllerian tubercle. Uterovaginal canal forms upper third of vagina.
Endoderm on either side of Müllerian tubercle proliferates to form two sinovaginal bulbs which fuse to form vaginal plate. The vaginal plate surrounds the caudal end of the uterovaginal canal. Soon there is a canalization of the vaginal plate to form lower 2/3rd of vagina and vaginal fornices. It opens through an endodermal partial septum- the hymen in definitive urogenital sinus.

7. Floor of orbit is not formed by all except
a. Ethmoid
b. Maxilla
c. Zygomatic
d. Palatine
Ans: A,Ethmoid
Ref: [REF TEXTBOOK OF HUMAN OSTEOLOGY INDERBIR SING 2/E P-128-130; BDC 4/E VOL III P. 27]
Exp: MEDIAL WALL OF ORBIT IS FORMED BY MAXILLA, SPHENOID, ETHMOID & LACRIMAL BONE

Orbital wall Formed by
Medial wall Sphenoid (body) , Maxilla (frontal process), Lacrimal bone, Ethmoid (orbital plate)
Lateral wall Zygomatic (frontal process)
Greater wing of Sphenoid
Roof Frontal
Lesser wing of sphenoid
Floor Palatine (Orbital process), maxilla, Zygomatic

8. Sentinel node biopsy of the breast. Which nerve damage is most likely to be seen?
a. Nerve to lattismusdorsii
b. Nerve toserratus anterior
c. Intercostobrachial nerve
d. Interthorasic nerve
Ans: C, Intercostobrachial nerve
Ref: Schwartz 8 Ed. Pg. 482
Exp: In sentinel node biopsy the most common affected nerve is Intercostobrachial

9. Urethral crest is due to
a. Ridge of mucosa
b. Puboprostatic spread
c. Insertion of detrusor
d. Insertion of trigone
Answer: (d) Insertion of trigone
Ref: reference-- A.K.Datta page 291 6th ed essentials of human anatomy vol 1
Explanation: it is a median longitudinal mucus fold which gradullay increase in height as it descends.the height reaches maximumof about 3mm at the middle of crest.it fades away below by dividing into branches.crest is produced by insertion of trigonal muscles of ureter.
Gray,s anatomy Ed. 39th pg.1295
the pre prostatic urethra is 1-1.5 cm long.extending vertically from the bladder neck to the superior aspect of urethral crest.the smooth muscle bundles surrounds the bladder neck and preprostatic urethra are arranged as distanct circular collar.

10. A person with von Gierke's disease has ketosis. All are true for ketosis in this patients except
a. Hypoglycemia
b. Lactic acidosis
c. Hypertriglyceridemia
d. Fat mobilization is less

Answer:(d) Fat mobilization is less
Reference:Shinde&Chatterjee 7th Edition page -331
Explanation:

Von Gierke's Disease (Type Ia Glycogen storage Disease)

INHERTITANCE	AR
ENZYME DEFECT	GLUCOSE-6-PHOSPHATASE
ORGANS AFFECTED	LIVER (PRIMARY), KIDNEY, INTESTINAL MUCOSA
GLYCOGEN STORED	NORMAL IN STRUCTURE BUT METABOLICALLY NOT AVAILABLE
APPEARANCE	DOLL LIKE FACE WITH FATTY CHEEKS, THIN EXTREMITIES AND PROTUBERANT ABDOMEN (D/T HEPATORENOMEGALY)

Glucose 6 phosphatase (Present in liver but not in muscle) converts glucose 6-PO4 (obtained from glycogenolysis) to glucose. So deficiency 1/t **Hypoglycemia.**

- Fasting hypoglycemia d/t unavailability of glycogen
- Hyperlipemia (hyperlipidemia). Acidaemia& ketosis occurs as a result of utilizing fat as energy source.
- Excess acetyl CoA obtained from β-oxidation is dilverted for increased cholesterol, fatty acid and ketone body synthesis resulting in xanthomas, fatty infiltration of liver, hepatorenomegaly (protuberant abdomen) & doll like face with fatty cheeks
- Persistent hypoglycemia has 2 effects
  - Inhibits insulin secretion which inturn inhibits protein synthesis l/t stunted growth (dwarfism) and thin extremities
  - Stimulates secretion of catecholamines which cause muscle glycogen to break down producing lactic acidosis
- Hyperuricemia, gout (d/t more pentose formation and decreased excretion). It has 2 reason
  - Increased production
    - Accumulated G-6 phosphate enters the HMP shunt and l/t increased production of pentoses
    - Pentose acts as substrate for PRPP synthetase (PhosphoRibosyl pyrophosphate synthetasae) and result in increased production of purines
    - Purines are catebolized to uric acid.
  - Decreased renal excretion of uric acid is caused by increased lactic acid level which competes with uric acid for excretion

11. Enzymes of irreversible steps in the glycolysis?
a. Hexokinase, Pyruvate kinase, Phosphofructokinase
b. Hexokinase, Pyruvate kinase, 1,6 biphospho-fructokinase
c. Hexokinase, Pyruvate Kinase, Pyruvate Dehydrogenase
d. Glucokinase, Pyruvate kinase,Mutase

Answer: (a) Hexokinase, Pyruvate kinase, Phosphofructokinase
Ref: Harper's 28th Edition pg.149-153, Lippincott 5 Edition pg. 96-103
Explanation:

- Enzymes of glycolysis –a process which converts 6 carbon glucose to 3 carbon unit pyruvate & lactate, are present in cytoplasm. Whereas complete oxidation of glucose (to CO2& H2O) requires mitochondrial enzymes (of TCA cycle)
- Out of total 9 enzymes used in glycolysis

o 3 enzymes –Hexokinase, phosphofructokinase (PFK-1) and Pyruvate kinase are used in irreversible steps

o 6 enzymes –phosphohexoseisomerase, aldolase, glyceraldehydes-3-phosphate dehydrogenase, 1,3-biphosphoglycerate kinase, phosphoglyceromutase and enolase are used in reversible steps

o 2 enzymes used in energy utilizing steps are –hexokinase (using 1 ATP) and phosphofructokinase / PFK-1 (using-ATP), this energy consumption is for 1 molecule of glucose.

o 3 enzymes used in energy producing steps are-glyceraldehydes 3 phosophate dehydrogenase (producing 2 NADH= 5 ATP) 1,3- biphosphoglycerate kinase (producing 2 ATP), and pyruvate kinase (producing 2 ATP) after complete oxidation.

12. Which of the following enzymes does not participate in oxidation reduction reaction?

a. Dehydrogenase
b. Peroxidases
a. Hydroxyperoxidase
b. Oxygenase

Answer: (b) Hydroxyperoxidase

Reference: Harper's 28th Edition page 98-102; Lippicott's 4thEdition page-53: Lehninger 5th Edition page -816, 518-20]

Explanation:

Enzymes involved in oxidation (removal of e-) and reduction (gain of electrons) are called oxido-reductase and are classified into 4 groups; oxidase, oxygenase, dehydrogenase, hydroperoxidase (peroxidase and catalase)

Oxido-reductase Enzymes

Oxidation involves removal of electron /hydrogen or hydride ion from a (reduced) substrate or incorporation of oxygen into a (reduced) substrate. After which the reduced substrate becomes oxidized. Oxygen, Flavin nucleotides (FMN, FAD) and Nicotinamide coenzymes (NAD+ or NADP+) are used as hydrogen acceptor. H2O2 can be used as e-acceptor & donor both. Thus oxidation is always accompanied by reduction of an electron (hydrogen) acceptor.

Oxidase

- Catalyze removal of hydrogen from substrate using O2 as hydrogen acceptor and forming H_2O or H2O as product
- Cytochrome oxidase (aa_3)contain copper
- Flavoprotein containing oxidase are L amino oxidase (FMN linked), Xanthine oxidase (Mo containing) and aldehyde dehydrogenase (FAD linked molybdenum & non heme iron containing)

Dehydrogenase

- Dehydrogenase cannot use oxygen as hydrogen from one substrate to another in a coupled oxidation –reduction rection
- Cytochromes are iron containing hemoproteins in which iron atoms oscillates between Fe+2 + & Fe+3 during oxidation & reduction. All cytochromes (except aa3) i.e. cytochrome b,C_1, c of respiratory chain and cytochrome p-450 & b_5 of endoplasmic reticulum are regarded dehydrogenase
- They use common coenzyme eg NAD^+ as hydrogen carrier. Because these reactions are reversible, these reducing equivalents (NAD+) are freely transferred in within the cell.

Hydroperoxidase

- These use H_2O_2 or organic peroxide as substrate &protect body from harmful peroxidase.
- Are of 2 types: peroxidases & catalase
- Catalase is a hemeprotein containing 4 hemegroup. In addition to possessing peroxidase activity it uses H_2O_2 as electro donor and acceptor. $2H_2O_2 \xrightarrow{\text{Catalase}} 2H_2O+O_2$
- Peroxidase are found in mild & in leukocytes, platelets ,& tissues involved in eicosanoid metabolism. It reduces perxodes using electron acceptors such as ascorbate, quinines, & cytochrome C $H_2O_2+AH_2 \xrightarrow{\text{Peroxidase}} 2H_2O+A$

Oxygenase

Catalyze direct transfer & incorporation of O_2 into a substrate

13. Real time PCR true is used for?

a. DNA Detection only
b. RNA Detection only
c. Protein Detection only
d. DNA Detection and amplification

Answer: (d) DNA Detection and amplification

References: Logan J, Edwards K, Saunders N, ed. Real-Time PCR: Current Technology and Applications;(2009)

Explanation:In molecular biology, real-time polymerase chain reaction, also called quantitative real time polymerase chain reaction (qPCR) or kinetic polymerase chain reaction is a laboratory technique based on the polymerase chain reaction, which is used to amplify and simultaneously quantify a targeted DNA molecule. For one or more specific sequences in a DNA sample, Real Time-PCR enables both detection and quantification. The quantity can be either an absolute number of copies or a relative amount when normal-

The procedure follows the general principle of polymerase chain reaction; its key feature is that the amplified DNA is detected as the reaction progresses in real time. This is a new approach compared to standard PCR, where the product of the reaction is detected at its end. Two common methods for the detection of products in real-time PCR are: (1) non-specific fluorescent dyes that intercalate with any double-stranded DNA, and (2) sequence-specific DNA probes consisting of oligonucleotides that are labelled with a fluorescent reporter which permits detection only after hybridization of the probe with its complementary sequence to quantify messenger RNA (mRNA) and non-coding RNA in cells or tissues.

qPCR is the abbreviation used for real-time PCR. Real-time reverse-transcription PCR is often denoted as: qRT-PCR. The acronym "RT-PCR" commonly denotes reverse transcription polymerase chain reaction and not real-time PCR, but not all authors adhere to this convention.

A DNA-binding dye binds to all double-stranded (ds) DNA in PCR, causing fluorescence of the dye. An increase in DNA product during PCR therefore leads to an increase in fluorescence intensity and is measured at each cycle, thus allowing DNA concentrations to be quantified. However, dsDNA dyes such as SYBR Green will bind to all dsDNA PCR products, including nonspecific PCR products (such as Primer dimer). This can potentially interfere with, or prevent, accurate quantification of the intended target sequence. The SYBR Green is excited using a blue light ($\lambda max = 488$ nm) and it emits a green light ($\lambda max = 522$ nm). The reaction is prepared as usual, with the addition of fluorescent dsDNA dye.The reaction is run in a real-time PCR instrument, and after each cycle, the levels of fluorescence are measured with a detector; the dye only fluoresces when bound to the ds DNA (i.e. the PCR product). With reference to a standard dilution, the dsDNA concentration in the PCR can be determined.

This method has the advantage of only needing a pair of primers to carry out the amplification, which keeps costs down; however it is only possible to amplify a product using a chain reaction.

Like other real-time PCR methods, the values obtained do not have absolute units associated with them (i.e., mRNA copies/cell). As described above, a comparison of a measured DNA/RNA sample to a standard dilution will only give a fraction or ratio of the sample relative to the standard, allowing only relative comparisons between different tissues or experimental conditions. To ensure accuracy in the quantification, it is usually necessary to normalize expression of a target gene to a stably expressed gene (see below). This can correct possible differences in RNA quantity or quality across experimental samples.

Fluorescent reporter probe method

(1) An intact probes, reporter fluorescence is quenched. (2) Probes and the complementary DNA strand are hybridized and reporter fluorescence is still quenched. (3) During PCR, the probe is degraded by the Taq polymerase and the fluorescent reporter released.

Fluorescent reporter probes detect only the DNA containing the probe sequence; therefore, use of the reporter probe significantly increases specificity, and enables quantification even in the presence of non-specific DNA amplification. Fluorescent probes can be used in multiplex assays—for detection of several genes in the same reaction—based on specific probes with different-colour labels, provided that all targeted genes are amplified with similar efficiency. The specificity of fluorescent reporter probes also prevents interference of measurements caused by primer dimers, which are undesirable potential by-products in PCR. However, fluorescent reporter probes do not prevent the inhibitory effect of the primer dimers, which may depress accumulation of the desired products in the reaction.

The method relies on a DNA-based probe with a fluorescent reporter at one end and a quencher of fluorescence at the opposite end of the probe. The close proximity of the reporter to the quencher prevents detection of its fluorescence; breakdown of the probe by the 5' to 3' exonuclease activity of the Taq polymerase breaks the reporter-quencher proximity and thus allows unquenched emission of fluorescence, which can be detected after excitation with a laser. An increase in the product targeted by the reporter probe at each PCR cycle therefore causes a proportional increase in fluorescence due to the breakdown of the probe and release of the reporter.

The PCR is prepared as usual (and the reporter probe is added.

As the reaction commences, during the annealing stage of the PCR both probe and primers anneal to the DNA target.

Polymerization of a new DNA strand is initiated from the primers, and once the polymerase reaches the probe, its 5'-3'-exonuclease degrades the probe, physically separating the fluorescent reporter from the quencher, resulting in an increase in fluorescence.

Fluorescence is detected and measured in a real-time PCR machine, and its geometric increase corresponding to exponential increase of the product is used to determine the quantification cycle (Cq) in each reaction.

14. Ketone Bodies are not utilized by
a. Brain
b. RBC
c. Renal cortex -
d. Skeltal muscle

Answer (b) RBC
Reference: Harper's Illustrated Biochemistry 27th Edition page 190-191; 26th Edition page 184:
Explanation:
Liver is the only organs which produces ketone bodies and add to the blood, but it lacks the enzyme responsible for their degradation and utilization. This is the reason why liver does not utilize ketone bodies
KETOSIS

- Under certain metabolic conditions associated with high rate of fatty acid oxidation, liver produces ketone bodies, which is used as respiratory substrate (Fuel) by extra-hepatic tissue ketone bodies is collective name given to 3

Compounds: 1. Acetone
2. Acetoacetate
3. Beta hydroxybutyrate

- In a well fed state concentration of ketone bodies in blood does not exceed 1mg /100ml

PHARMACOLOGY

15. Rho kinase inhibitor is seen in :
a. Fasudil
b. Nicorandil
c. Amiodarone
d. Ranolazine

Answer: (a) Fasudil
Reference: Katjung 12th edition page 206
Explanation: Fasudil Hydrochloride is a potent Rho-kinase inhibitor and vasodilator. Since it was discovered, it has been used for the treatment of cerebral vasospasm, which is often due to subarachnoid hemorrhage, as well as to improve the congnitive decline seen instroke victims. It has been found to be effective for the treatment of pulmonary hypertension. It was demonstrated in February 2009 that Fasudil could also be used to enhance memory and improve the prognosis of Alzheimer's patients

16. Orphan drugs are
a. Drugs used in Orphans
b. Drugs used for rare diseases
c. Rarely using drugs
d. Drugs of common dis used rarely

Ans: B, Drugs used for rare diseases
Ref: Katjung 12th edition , page 77
Exp: An orphan drug is a pharmaceutical agent that has been developed specifically to treat a rare medical condition, the condition itself being referred to as an orphan disease.

17. Suicide enzyme is :
a. COX
b. Lipo-oxygenase
c. Nucleosidase
d. Thromboxane Synthase

Ans: (a) COX

Ref:Harper 29th Ed. Pg. 225,
Exp: Cyclooxygenase is a “Suicide Enzyme”
“Switching off” of prostaglandin activity is partly achieved by a remarkable property of cyclooxygenase-that of self –catalyzed destruction; i.e. it is a :Suicide enzyme.”

18. Prolonged post antibiotic effect and concentration dependent killing seen in
a. flouroquinolones
b. Vancomycin
c. clindamycin
d. erythromycin

Ans: (a) flouroquinolones
Ref: Katjung 12th edition page 823
Exp: The minimum inhibitory concentration and minimum bactericidal concentration are used to measure in vitro activity antimicrobial and is an excellent indicator of antimicrobial potency. They don’t give any information relating to time-dependent antimicrobial killing the so called post antibiotic effect
Post Antibiotic Effect
Concentration dependent (time independent) means that the rate and extent of microorganism killing are a function of the antimicrobial concentration (increase as the concentration increases). The pharmacodynamic parameter that is most often predictive of outcome for concentration dependent drugs is peak/MIC, although the AUC/MIC can be used because the AUC takes both the antimicrobial concentration and time into account. Examples of concentration dependent antimicrobials include: fluoroquinolones, aminoglycosides, and amphotericin B
The post antibiotic effect (PAE) is defined as persistent suppression of bacterial growth after a brief exposure (1 or 2 h) of bacteria to an antibiotic even in the absence of host defense mechanisms.[3] Factors that affect the duration of the post antibiotic effect include duration of antibiotic exposure, bacterial species, culture medium and class of antibiotic. It has been suggested that an alteration of DNA function is possibly responsible for post antibiotic effect following the observation that most inhibitors of protein and nucleic acid synthesis (aminoglycosides, fluoroquinolones, tetracyclines, clindamycin, certain newer macrolides/ketolides, and rifampicin and rifabutin) induce long-term PAE against susceptible bacteria. [4][3] Theoretically, the ability of an antibiotic to induce a PAE is an attractive property of an antibiotic since antibiotic concentrations could fall below the MIC for the bacterium yet retain their effectiveness in their ability to suppress the growth

19. Dysphoric effects of opioid receptors are mediated by
a. Kappa
b. Lamba
c. Mu
d. Sigma

Ans: A, kappa
Ref: Katjung 12th edition 546-559
Exp: psychomimetic effects of opioid are due to kappa receptors.

20. Design study which aims to asses the maximum tolerable dose of new drug
a. Case control
b. Phase 1 trial
c. Phase 2RCT
d. Phase 4 RCT

Ans: B, Phase 1 trial
Ref: Katjung 12th edition page 58-59
Exp: Phase I trials are the first to take place and are primarily concerned with the saftey of the treatment. In drug development trials the main objective is to estimate the maximum tolerated dose (MTD) and investigate drug toxicity.
Phase I trials for cytostatic drugs
The aims of such trials are typically to:
Estimate the maximum tolerated dose (MTD)

Determine the extent, duration and reversibility of toxicity
Observe any anti-tumour activity

21. Ritonovir inhibits all except?
a. Amiodarone
b. Cisapride
c. Phenytoin
d. Midazolam

Ans: C, Phenytoin
Ref: katjung 12th edition pages 880 and 889
Exp: ritonavir induces CYP 1A2 and inhibits the major P450 isoforms (3A4 and 2D6).
amiodarone – decreased metabolism, possible toxicity
midazolam and triazolam – contraindicated
carbamazepine – decreased metabolism, possible toxicity
cisapride – decreased metabolism, possible prolongation of Q-T interval and life-threatening arrythmias
disulfiram (with ritonavir oral preparation) – decreased metabolism of ritonavir
voriconazole – ritonavir increases metabolism of voriconazole
Because of potential toxicities, ritonavir should not be used concurrently with various antiarrhythmics (amiodarone, encainide, flecainide, quinidine) and highly metabolized sedative/hypnotics (i.e., alprazolam, diazepam, flurazepam, midazolam, and triazolam).

22. The site of action of the vasopressin receptor antagonists is
a. Proximal convoluted tubule
b. Distal convoluted lobule
c. Cortical collecting tubule
d. Medullary collecting duct

Ans: (c) Cortical collecting tubule
Ref: katjung 12th edition page no. 303
Exp: The collecting ducts, in particular, the outer medullary and cortical collecting ducts, are largely impermeable to water without the presence of antidiuretic hormone (ADH, or vasopressin).
A vasopressin receptor antagonist (VRA) is an agent which interferes with action at the vasopressin receptors. Most commonly VRAs are used in the treatment of hyponatremia, especially in patients with congestive heart failure, liver cirrhosis or SIADH
Tetracyclines [edit]
Demeclocycline, a tetracycline antibiotic, is sometimes used to block the action of vasopressin in the kidney in hyponatremia due to inappropriately high secretion of vasopressin (SIADH), when fluid restriction has failed.[2]
Vaptans [edit]
A new class of medication, the “vaptan” drugs, act by inhibiting the action of
vasopressin on its receptors (V1A, V1B and V2).
V2 receptor [edit]
V2 receptor (V2R) differs from V1R primarily in the number of sites susceptible to N-linked glycosylation; the V1R has sites at both the amino-terminus and at the extracellular loop, whereas the V2R has a single site at the extracellular amino-terminu
The well known antidiuretic effect of vasopressin occurs via activation of V2R.[1] Vasopressin regulates water excretion from the kidney by increasing the osmotic water permeability of the renal collecting duct – an effect that is explained by coupling of the V2R with the Gs signaling pathway, which activates cAMP. The increased intracellular cAMP in the kidney in turn triggers fusion of aquaporin-2-bearing vesicles with the apical plasma membrane of the collecting duct principal cells, increasing water reabsorption.

23. Iodine use in thyroid disorder not true?
a. Cuases Iodism
b. Contraindicated in Hyperthyroidism
c. Inhibit Formation of Iodo Thyronine

d. Thyroxine Release
Ans: (b) Contraindicated in Hyperthyroidism
Ref: Katzung 12th Edition pg. 689
Exp: Iodine has several effects on thyroid function. In hyperthyroid patients, iodine acutely inhibits hormonal secretion within hours , but the responsible mechanisms are uncertain. This is the most acute effect of iodine on thyroid status, occurring within one to two days of the start of therapy.
A second effect involves inhibition of thyroid hormone synthesis. In normal subjects, the administration of pharmacologic amounts of iodine leads to temporary inhibition of iodine organification in the thyroid gland, thereby diminishing thyroid hormone biosynthesis, a phenomenon called the Wolff-Chaikoff effect [2]. However, within two to four weeks of continued exposure to excess iodine, organification and thyroid hormone biosynthesis resume in a normal fashion. This is called escape from the Wolff-Chaikoff effect.

24. Which of the following drugs can be given in subcutaneous form?
a. Terbutaline
b. Almeterol
c. Fenoterol
d. Metaproterenol
Ans: (a) Terbutaline
Ref: Katzung 12th Edition pg. 344
Exp: --After subcutaneous administration of 0.25 mg of Terbutaline sulfate injection, a measurable change in expiratory flow rate usually occurs within 5 minutes

25. Drug induced SLE is seen with all except:
a. Hydralazine
b. penicillin
c. Sulfonamide
d. Isoniazide
Ans (b) Penicillin
Ref: Harrison 16th Ed. Pg. 1960-61, CMDT 2006 pg. 834
Exp: EXPL…High risk:
Procainamide (antiarrhythmic)
Hydralazine (antihypertensive)
Moderate to low risk:
Infliximab anti (TNF-alpha)
Etanercept anti (TNF-alpha)
Isoniazid (antibiotic)
Minocycline (antibiotic)
Pyrazinamide (antibiotic)
Quinidine (antiarrhythmic)
D-Penicillamine (anti-inflammatory)
Carbamazepine (anticonvulsant)
Oxcarbazepine (anticonvulsant)
Phenytoin (anticonvulsant)
Propafenone (antiarrhythmic)

26. 16 yr old girl complains of severe abdominal pain after receiving sulphur drugs. She was incoherent of suffered a seizure. The probable diagnosis of the patient is
a. Acute intermittent porphyria
b. Congenital erythropoeitic porphyria
c. Erythropoietic protoporphyria (EEP)
d. Hepatic porphyrias
Ans: A, Acute intermittent porphyria
Ref: Harrison's 17th Ed. Pg. 2434-40: Fitzpatrick 7ed. Pg. 1228-56

Exp: Acute intermittent porphyria (AIP),

- Characterised by abdominal pain (most common-90%), neurological & psychiatric symptoms.
- Abdominal pain is often intermittent, steady, poorly localized & spasmodic.
- Vomiting, nausea, constipation (ileus), decreased bowel sound are common
- Abdominal tenderness, fever, leukocytopsis are usually absent or mild because symptoms are neurological rather than inflammatory
- Mental (psychiatric) symptoms include anxiety, insomnia, depression, disorientation, hallucination & paronia
- Peripheral neuropathy d/t aomnal degernation primarily affects motor neuroms of proximal muscles (shoulder & arms) initially > focal cranial nerve> sensory (L/t paresthesia, pain in limb, head –neck & sensory loss) > respiratory & bulbar paralysis (l/t death)
- Seizures can be d/t hyponatremia (resulting from vomiting & inappropriate fluid therapy) or neurological effect. Treatment of seizure is difficult because most anti seizure drugs can exacerbate AIP (clonazepam may be safer than phenytoin or barbiturates)
- Sympathetic overactivity may l/t tachycardia, hypertension, restlessness, tremors, excessive sweating & cardiac arrhythmias causing sudden death

27. Comparison of efficacy of a drug with placebo is confirmed in which phase of clinical trials?

a. Phase I
b. Phase 2
c. Phase 3
d. Phase 4

Ans: (c)Phase 3
Ref: Katzung 12th Edition pg. 59 & 74
Exp: Efficacy of a new chemical entity is first known in phase 2 clinical trials. Phase 2 studies are indicative studies. On the other hand, the finding of phase 2 are confirmed in phase 3 clinical trials. Phase 3 trials are also know as Therapeutic confirmatory studies

PATHOLOGY

28. If a chromosome divides in an axis perpendicular to usual axis of division it is going to form:

a. Ring chromosome
b. Isochromosome
c. Acrocentric
d. Subtelocentric

Answer: b. Isochromosome
Reference: Emery's Elements of Medical Genetics, 14th edition
Explanation:

- An isochromosome is formed when the centromere divides transversely rather than longitudinally.
- An isochromosome shows loss of one arm with duplication of the other.
- The most commonly encountered isochromosome is that which consists of 2 long arms of X chromosome.
- Isochromosome accounts for upto 15% of all cases of Turner Syndrome

29. Marker for rhabdomyosarcoma

a. Desmin
b. Synaptophysin
c. Keratin
d. Synaptophysin

Answer: (a) Desmin
Reference: Robbin's 8TH edition pg 1253
Explanation:

Rhabdomyosarcoma, the most common soft tissue sarcoma of childhood and adolescence, usually appears before age 20. They may arise in any anatomic location, but most occur in the head and neck or

genitourinary tract, where there is little, if any, skeletal muscle as a normal constituent. Only in the extremities do they appear in relation to skeletal muscle

Rhabdomyosarcoma is histologically subclassified into the embryonal, alveolar, and pleomorphic variants.

The rhabdomyoblast—the diagnostic cell in all types—contains eccentric eosinophilic granular cytoplasm rich in thick and thin filaments. The rhabdomyoblasts may be round or elongate; the latter are known as tadpole or strap cells and may contain cross-striations visible by light. Ultrastructurally, rhabdomyoblasts contain sarcomeres, and immunohistochemically they stain with antibodies to the myogenic markers desmin, MYOD1, and myogenin

30. Due to popularity of refrigeration reducing the need to preserve food, which cancer's incidence has dramatically declined:

a. Esophagus
b. Stomach
c. Colon
d. Nasopharynx

Answer: (b) Stomach
Reference: Robbons 7th ed: Robbin's 8th ed:pg 784
Explanation: Factors Associated with Increased Incidence of Gastric Carcinoma
The overall reduction in the incidence of Gastric cancer is unknown. One possible explanation is decresed consumtion of diatary carcinogens,such as N-nitroso compounds and benzo-pyrene, because of reduced use of salt and smokink in food preservation and widespread use of refrigeration.

Environmental Factors
Infection by H. pylori
• Present in most cases of intestinal-type carcinoma
Diet
• Nitrites derived from nitrates (water, preserved food)
• Smoked and salted foods, pickled vegetables, chili peppers
• Lack of fresh fruit and vegetables
Low socioeconomic status
Cigarette smoking
Host Factors
Chronic gastritis
• Hypochlorhydria: favors colonization with H. pylori
• Intestinal metaplasia is a precursor lesion
Partial gastrectomy
• Favors reflux of bilious, alkaline intestinal fluid
Gastric adenomas
• 40% harbor cancer at time of diagnosis
• 30% have adjacent cancer at time of diagnosis
Barrett esophagus
• Increased risk of gastroesophageal junction tumors
Genetic Factors
Slightly increased risk with blood group A
Family history of gastric cancer
Hereditary nonpolyposis colon cancer syndrome
Familial gastric carcinoma syndrome (E-cadherin mutation

Environmental Factors
Infection by H. Pylori
• Present in most cases of intestinal-type carcinoma
Diet
• Nitrites derived from nitrates (water, preserved food)
• Smoked and salted foods, pickled vegetables, chili peppers
• Lack of fresh fruit and vegetables
Low socioeconomic status
Cigarette smoking
Host Factors
Chronic gastritis
• Hypochlorhydria: favors colonization with H. pylori
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Family history of gastric cancer
Hereditary nonpolyposis colon cancer syndrome
Familial gastric carcinoma syndrome (E-cadherin mutation

31. What is used for diagnosis of fragment of chromosomes
a. FISH
b. CGH
c. PCR
d. RFLP

Answer: (a) FISH
Reference: Robbins and Cotran, pathologic Basis of Disease 8th Ed. Pg. 179
Explanation: FISH is used to detect and localize the presence or absence of specific DNA sequences on chromosomes. FISH uses fluorescent probes that bind to only those parts of the chromosome with which they show a high degree of sequence complementarity.

Fluorescence microscopy can be used to find out where the fluorescent probe is bound to the chromosomes. FISH is often used for finding specific features in DNA for use in genetic counseling, medicine, and species identification. FISH can also be used to detect and localize specific RNA targets (mRNA, lncRNA and miRNA) in cells, circulating tumor cells, and tissue samples. In this context, it can help define the spatial-temporal patterns of gene expression within cells and tissues.

32. Embryonic haemoglobin is composed up of :
a. Alpha and beta
b. Epsilon and gamma
c. Gamma and beta
d. Zeta and epsilon

Answer: (d) Zeta and epsilon
Reference: Nelson ped 19th ed:pg 1663

Explanation: Hemoglobin is a tetramer consisting of 2 pairs of globin chains. Abnormalities in these proteins are referred to as hemoglobinopathies. There are ~800 variant hemoglobins. The most common and useful clinical classification of hemoglobinopathies is based on nomenclature associated with alteration of the involved globin chain. Two hemoglobin gene clusters are involved in the produc-tion of hemoglobin and are located at the end of the short arms of chromosomes 16 and 11. Their control is complex, including an upstream locus control region on each respective chromosome and an X-linked control site.

On chromosome 16, there are 3 genes within the αgene cluster, namely zeta (ζ), alpha 1 (α1), and alpha 2 (α2).

On chromosome 11, there are 5 genes within the beta gene cluster, namely epsilon (ε), 2 gamma genes (γ), a delta gene (δ), and a beta gene (β).

The order of the gene expression within each cluster roughly follows the order of expression during the embryonic period, fetal period, and eventually childhood.

After 8 wk of fetal life the embryonic hemoglobins, Gower-1 (ζ2ε2), Gower-2 (α2ε2), and Portland (ζ2γ2), are formed. At 9 wk of fetal life, the major hemo-globin is Hb F (α2γ2). Hb A (α2β2) appears at ~1 mo of fetal life but does not become the dominant hemoglobin until after birth, when Hb F levels start to decline. Hb A2(α2δ2) is a minor hemo-globin that appears shortly before birth and remains at a low level after birth. The final hemoglobin distribution pattern that occurs in childhood is not achieved until at least 6 mo of age and sometimes later. The normal hemoglobin pattern is ≥95% Hb A ≤3.5 Hb A2, and <2.5% Hb F

33. Which is not seen with apoptosis

a. Cell shrinkage

b. Nuclear condensation

c. Inflammation

d. All of the above

Answer: (c) Inflammation

Reference: Robbins 8th ed; pg 27

Explanation: Apoptosis is a pathway of cell death that is induced by a tightly regulated intracellular program in which cells destined to die activate enzymes that degrade the cells' own nuclear DNA and nuclear and cytoplasmic proteins. The cell's plasma membrane remains intact, but its structure is altered in such a way that the apoptotic cell becomes an avid target for phagocytosis.

The dead cell is rapidly cleared, before its contents have leaked out, and therefore cell death by this pathway does not elicit an inflammatory reaction in the host.

Thus, apoptosis is fundamentally different from necrosis, which is characterized by loss of membrane integrity, enzymatic digestion of cells, and frequently a host reaction

34. True about MHC is

a. Antigen presenting

b. Regulation of T cell mediated immune response

c. Class II Gene present on T cells

d. Class I Gene present on B cells

Answer: Antigen presenting

Reference: Robbins 8 th ed; pg 190

Explanation: On the basis of their chemical structure, tissue distribution, and function, the MHC gene products are classified into three categories. Class I and class II genes encode cell surface glycoproteins involved in antigen presentation.

Class I MHC molecules are expressed on all nucleated cells and platelets. They are encoded by three closely linked loci, designated HLA-A, HLA-B, and HLA-C

Each of these molecules is a heterodimer, consisting of a polymorphic α, or heavy, chain (44-kD) linked noncovalently to a smaller (12-kD) nonpolymorphic peptide called β2-microglobulin, which is not encoded within the MHC. The extracellular region of the heavy chain is divided into three domains: α1, α2, and α3

Crystal structure of class I molecules has revealed that the α1 and α2 domains form a cleft, or groove, where peptides bind to the MHC molecule.Biochemical analyses of several different class I alleles have revealed that almost all polymorphic residues line the sides or the base of the peptide-binding groove.

As a result, different class I alleles bind and display different peptide fragments. In general, class

I MHC molecules bind and display peptides that are derived from proteins, such as viral antigens, synthesized within the cell. The generation of peptide fragments within the cells, and their association with MHC molecules and transport to the cell surface, is a complex process. Involved in this sequence are proteolytic complexes (proteasomes), which digest antigenic proteins in the cytoplasm into short peptides, and transport proteins, which ferry peptide fragments from the cytoplasm to the endoplasmic reticulum. Within the endoplasmic reticulum, peptides bind to the antigen-binding cleft of newly synthesized class I heavy chains, which then associate with β2-microglobulin to form a stable trimer that is transported to the cell surface for presentation to CD8+ cytotoxic T lymphocytes

35. A man has hepatosplenomegaly with pancytopenia. On biopsy of liver large cells are seen with a crumpled tissue paper appearance of nuclei. Which of the following may be deficient in this patient?

a. Glucocerebrosidase
b. Sphingomyelinase
c. L-Iduronase
d. Hexosaminidase

Answer: A, Glucocerebrosidase
Reference: Robbins 8th ed: pg 149
Explanation: Gauchers Disease is very important from PG exam point of view. Read on the explanation below.
Gaucher Disease

- Gaucher disease refers to a cluster of autosomal recessive disorders resulting from mutations in the gene encoding glucocerebrosidase.
- This disease is the most common lysosomal storage disorder.
- The affected gene encodes glucocerebrosidase, an enzyme that normally cleaves the glucose residue from ceramide. As a result, glucocerebroside accumulates principally in the phagocytic cells of the body but in some forms also in the central nervous system.
- Glucocerebrosides are continually formed from the catabolism of glycolipids derived mainly from the cell membranes of senescent leukocytes and erythrocytes.

Three clinical subtypes of Gaucher disease have been distinguished.

1. The most common, accounting for 99% of cases, is called type I, or the chronic non-neuronopathic form. In this type, storage of glucocerebrosides is limited to the mononuclear phagocytes throughout the body without involving the brain. Splenic and skeletal involvements dominate this pattern of the disease. It is found principally in Jews of European stock. Patients with this disorder have reduced but detectable levels of glucocerebrosidase activity. Longevity is shortened but not markedly.
2. Type II, or acute neuronopathic Gaucher disease, is the infantile acute cerebral pattern. This infantile form has no predilection for Jews. In these patients, there is virtually no detectable glucocerebrosidase activity in the tissues. Hepatosplenomegaly is also seen in this form of Gaucher disease, but the clinical picture is dominated by progressive central nervous system involvement, leading to death at an early age.
3. A third pattern, type III, is sometimes distinguished, intermediate between types I and II. These patients are usually juveniles and have the systemic involvement characteristic of type I but have progressive central nervous system disease that usually begins in the teens or twenties. These specific patterns run within families, resulting from different allelic mutations in the structural gene for the enzyme.

Clinical Feature:
The clinical course of Gaucher disease depends on the clinical subtype.
In type I, symptoms and signs first appear in adult life and are related to splenomegaly or bone involvement. Most commonly, there is pancytopenia or thrombocytopenia secondary to hypersplenism. Pathologic fractures and bone pain occur if there has been extensive expansion of the marrow space. Although the disease is progressive in the adult, it is compatible with long life. In types II and III, central nervous system dysfunction, convulsions, and progressive mental deterioration dominate, although organs such as the liver, spleen, and lymph nodes are also affected.
Diagnosis:

- The diagnosis of homozygotes can be made by measurement of glucocerebrosidase activity in pe-

ripheral blood leukocytes or in extracts of cultured skin fibroblasts.

- Because there is substantial overlap between the enzyme levels in normal individuals and heterozygotes, such assays are not reliable for carrier detection. In principle, detection of specific mutations can be used for detecting heterozygotes.
- Because more than 150 allelic mutations can cause Gaucher disease, however, it is not possible to use a single genetic test.
- Chitotriosidase, an enzyme synthesized by macrophages, is markedly elevated in patients with Gaucher disease.
- It is a reasonably specific biomarker for Gaucher disease because levels are only slightly elevated in other disorders affecting macrophages.

Diagnosis on biopsy:

- The glucocerebrosides accumulate in massive amounts within phagocytic cells throughout the body in all forms of Gaucher disease.
- The distended phagocytic cells, known as Gaucher cells, are found in the spleen, liver, bone marrow, lymph nodes, tonsils, thymus, and Peyer patches.
- Similar cells may be found in both the alveolar septa and the air spaces in the lung. Gaucher cells rarely appear vacuolated but instead have a fibrillary type of cytoplasm likened to crumpled tissue paper. Gaucher cells are often enlarged, sometimes up to 100 μm in diameter, and have one or more dark, eccentrically placed nuclei. Periodic acid-Schiff (PAS) staining is usually intensely positive. With the electron microscope, the fibrillary cytoplasm can be resolved as elongated, distended lysosomes, containing the stored lipid in stacks of bilayers.

Treatment:

As with all lysosomal storage diseases, the treatment of Gaucher disease is difficult. Replacement therapy with recombinant enzymes is effective, and those with type I disease can expect normal life expectancy with enzyme replacement therapy. However, such therapy is extremely expensive. Because the fundamental defect resides in mononuclear phagocytic cells originating from marrow stem cells, bone marrow transplantation has been attempted. Attempts are also directed toward correction of the enzyme defect by transfer of the normal glucocerebrosidase gene into the patient's cells.

MICROBIOLOGY

36. A woman is having sore throat with high grade fever with headache nausea and vomiting. On examination, she is having RR of 36/min, temperature of 39 degrees and BP of 80/50 mm Hg. On her arm some red spots are seen distal to BP cuff. The probable diagnosis is :

a. N. Meningitidis
b. Brucellasuis
c. Brucella abortus
d. Staph. Aureus.

Answer (a) N. Meningitidis

Reference- Harrison 18th /p1166, 1211-13, Ananthnarayan 8th /p224-227.

o Features like .....Female with Fever, headache, hypotension, tachycardia and petechial rashes..... Points towards ..... a case of meningococcal speticemia.....

o St aureus TSS may present with similar features, but can be ruled out because... there is no h/o use of vaginal tampons.

Meningococcal septicaemia-

o Meningococcal septicemia alone accounts for up to 20% of cases of meningococcal disease. The condition may progress from early nonspecific symptoms to death within hours.

o Early symptoms are nonspecific and presented as-

o influenza-like illness with fever,

o headache, and myalgia accompanied by

o vomiting and abdominal pain

- A nonblanching rash (petechial or purpuric) develops in >80% of cases of meningococcal disease;
- Shock is manifested by tachycardia, poor peripheral perfusion, tachypnea, and oliguria.
- Decreased cerebral perfusion leads to confusion, agitation, or decreased level of consciousness.

• With progressive shock, multiorgan failure ensues; hypotension is a late sign in children, who more commonly present with compensated shock.
• Poor outcome is associated with an absence of meningismus, hypotension, young age, coma, relatively low temperature (< 38oC), leukopenia, and thrombocytopenia.
• Spontaneous hemorrhage (pulmonary, gastric, or cerebral) may result from consumption of coagulation factors and thrombocytopenia.
Also read this lines....
o The most common form of infection with N. meningitidis is asymptomatic carriage of the organism in the nasopharynx.
o Despite the location of infection in the upper airway, meningococcal pharyngitis is rarely reported; however, upper respiratory tract symptoms are common prior to presentation with invasive disease.

37. Rapidly frowing Atypical organism involved in lung infection ?
a. m.chelonae
b. m.fortuitum
c. m.abscessus
d. M.kansasi
Answer (c) M.abscessus
Reference- Harrison 18th /p1369, Koneman's Diagnostic Microbiology 6th/p1105
• Any of the rapidly growing Mycobacteria such as M chelonei, M fortuitum & M. Abscessus can cause pulmonary infection but infection with M. Abscessus may be particularly dangerous ..Koneman's Diagnostic Microbiology 6th/p1105
• M. kansasii ..... Belongs to photochromogen.
o Can cause a clinical syndrome that strongly resembles tuberculosis, consisting of hemoptysis, chest pain, and cavitary lung disease.
• MAC organisms are the most common causes of pulmonary nontuberculous mycobacterial infection in North America.
• The rapidly growing NTM, M chelonei, M fortuitum & M. abscessus, acquired via skin contamination from surgical instruments (especially in cosmetic surgery), injections, and other procedures. These infections are typically accompanied by painful, erythematous, draining subcutaneous nodules, usually without associated fever or systemic symptoms.

Atypical Mycobacterium

Runyon classifcation	Definition	SPECIES
I Photo chromogen	Pigmentation only in light	M kansasii, M marinum, M simiae, M.asciaticum (MASK)
II Scoto chromogen	Pigmentations only in light & dark	SSG-M. scrofulaceum, M szulgai , S.gordonae
III Non-chromogen	No Pigmentation	MAC, M xenopi M. ulcerans
IV Rapid growers	Grows within a week	M chelonei, M fortuitum M.abscessus

Diseases caused by Atypical Mycobacterium
• Post trauma abscess - M chelonei , M fortuitum
• Swimming pool granuloma - M marinum
• Buruli ulcer - M. ulcerans
• Mycobacteria Causing Johnes Disease -M. paratuberculosis
• Lymphadenopathy - M. scrofulaceum
• Pulmonary disease - M kansasii
• Disseminated disease- M avium intracellulare

38. 15 Year old complains of loose motion, intermittent abdominal pain of 1year wet mount of stool shows multiple ova> 100 microns in length.
Which of the following agent is responsible
a. Fosciola Gigantica

c. Ancyclostoma Caninum
d. Ophistotichus viverni
Answer (a) Fasciola Gigantica
Reference- Harrison 18th , Text book of Parasitiology by Dr Apurba Sastry/1st edn.
Among the options, eggs of Fasciola Gigantica are larger >100 µm size and Fasciola Gigantica is associated with fever & abdominal symptoms.

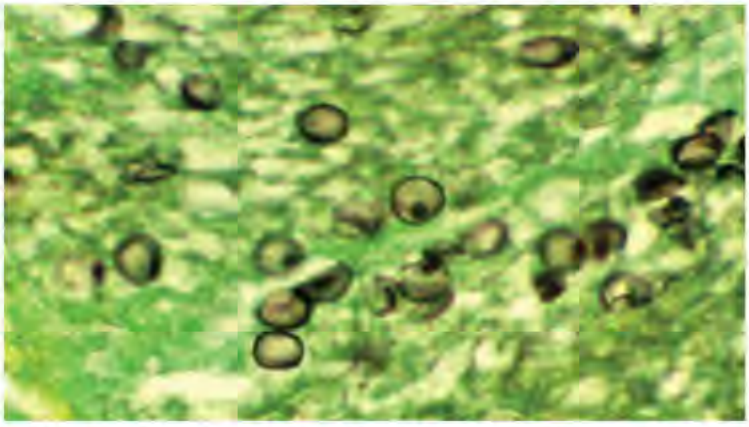
- Option a - Fasciola Gigantica-
  - Eggs are oval, bile stained, unembryonated and operculated, larger in size (160-190 µm ×70-90µm).
  - Acute disease develops during metacercariae migration (1–2 weeks after infection) and includes fever, right-upper-quadrant pain, hepatomegaly and eosinophilia.

Fasciola Gigantica eggs

- Option b - Gastrodiscoides Hominis-
  - Eggs are operculated, measures 150 µm ×60-70µm size.
  - Light infection is asymptomatic where as heavy infection may cause mucus diarrhoea and other intestinal symptoms.
- Option c - Ancyclostoma Caninum- causes Cutaneous larva migrans, eggs are not found in humans, found only in canine animals feces. Only the larvae are found in men.
- Option d - Opisthorchis Viverrini- Eggs- Measure 27 µm ×15µm, flask shaped with an operculum and a knob.

39. Special stain fungus ?
a. Masson Trichrome
b. Silver Methamine stain
c. Alizarin Red
d. Congo Red
Answer (b) Gomori methenamine silver
Reference- Harrison 18th /p 1637, Jagdish Chander text book of Mycology 3rd /p567

- The stains most commonly used to identify fungi are periodic acid–Schiff and Gomori methenamine silver. .....Harrison 18th /p1637
- Masson Trichrome stain – used for stool sample to demonstrate the parasites.



and Gomori methenamine silver demonstrating Pneumocystis cyst

Fungal stains
□ LPCB- demonstrate the hyphae in SDA culture
□ PAS- Most widely used fungal stain for biopsy specimen , Stains only live fungi
□ Mucicarmine- Cryptococcus & Rhinosporidium
□ India Ink & Nigrosin-- Cryptococcus capsule
□ Gram stain- for Candida
□ Gomori Methinamine Silver-
o Stains Pneumocystis cyst
o Also stains Nocardia & Actinomyces
o Stains both live and dead fungi
o Polysaccharide content of fungus stains black and tissue stains pale green
□ Calcofluor white staining coupled with fluorescent microscopy to identify fungi in fluid specimens

40. CMV infection immediate diagnosis by?

a. Direct DNA estimation

b. Antigen detection

c. Isolation of the virus

d. ELISA for serum antibody

Answer (a) direct DNA estmation

Reference- Harrison 18th /p1474, Ananthnarayan 8th /p474, Jawetz 24th /p441

- The most sensitive way to detect CMV in blood or other fluids may be by amplifying CMV DNA by PCR.
- PCR detection of CMV DNA in blood may predict the- risk for disease progression, particularly in immunocompromised hosts
- PCR detection of CMV DNA in cerebrospinal fluid is useful in the diagnosis of CMV encephalitis or polyradiculopathy.
- Detection of CMV antigens (pp65) in peripheral-blood leukocytes or of CMV DNA in blood or tissues may hasten diagnosis. Such assays may yield a positive result several days earlier than culture methods.

Lab diagnosis of CMV–
□ Isolation by Culture in human fibroblast cell line,
□ Growth occurs in 2-3wk, Can be improved by shell vial technique
□ Antigen detection- pp65 antigenemia
□ DNA PCR
□ IgM or fourfold rise of IgG

Transplacental CMV infection	Postnatal CMV infection
Baby's IgM Antibody titre- • At birth- just appearing • At 1 month- peak • At 3 month- falls	Baby's IgM Antibody titre- • At birth- • At 1 month-- just appearing • At 3 month- peak

41. Legionella pneumophila spreads by
a. Person to person
b. A.C Aerosol
c. Infected Meat
d. Water Drinking which is contaminated

Answer (b) A.C Aerosol

Reference- Harrison 18th /p1236, Ananthnarayan 8th /p400-401

- Multiple modes of transmission of Legionella to humans exist, including-
  - Aerosolization,
  - Aspiration,
  - Direct instillation into the lungs during respiratory tract manipulations.
- Aspiration is now known to be the predominant mode of transmission
- Aerosolization of Legionella by devices filled with tap water, including whirlpools, nebulizers, and humidifiers, cooling tower, air-conditioners, has been implicated.
- Reservoir –
  - Natural water source- Rivers/streams/amoebae;
  - Artificial Aquatic source- AC, water cooling tanks
- No human – to human transmission,
- No carriers, No animal reservoir

Legionnaires' disease ("Atypical Pneumonia") –
• CAP + Diarrhea + encephalitis • MC extrapulmonary site – heart • Numerous PMN, but no organism in sputum
Pontiac Fever –mild flu like
Diagnosis: Fastidious requiring iron and cysteine -(BCYE medium)
Treatment- Azithromycin or Clarithromycin is DOC. Alternate is quinolones.
B lactamase & AMG- not affective

PHYSIOLOGY

Urinary metabolite of progesterone:
Pregnanolone
Progestriol
17 Hydroxypregnanolone
Pregnanediol

Answer: (d) Pregnanediol

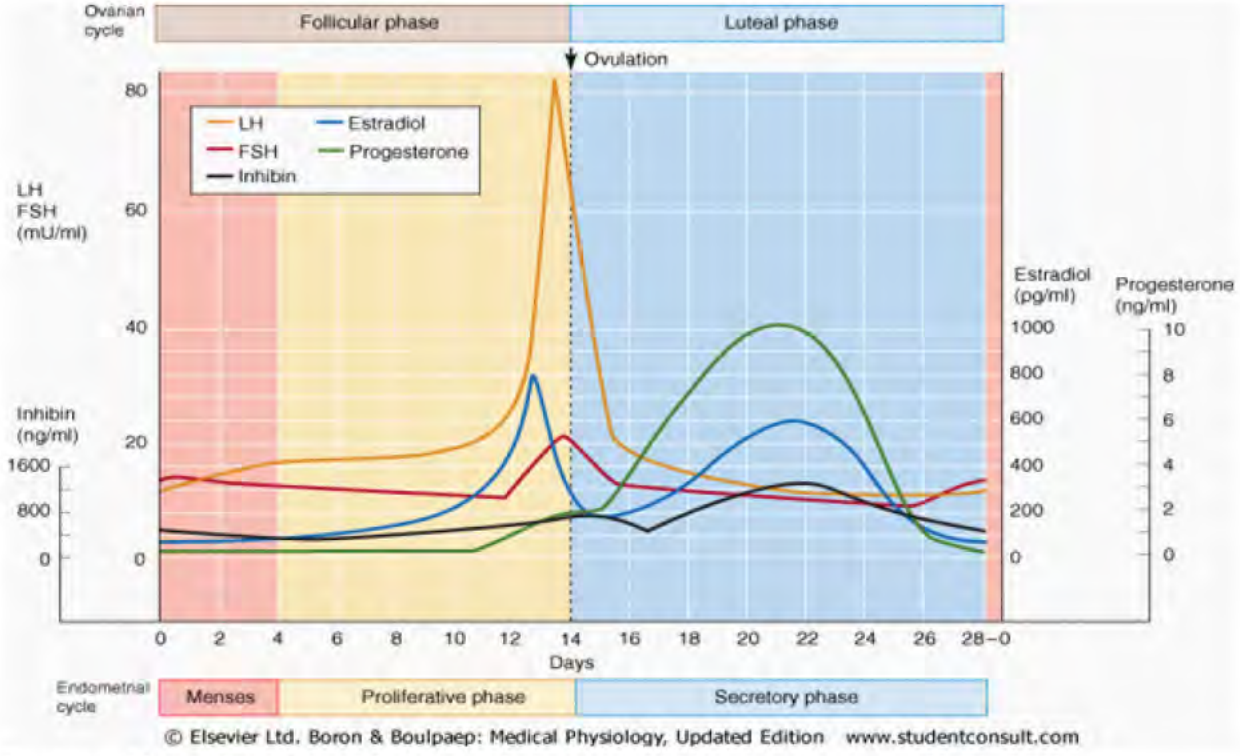
Reference:Ganong's Review of Medical Physiology, 22nd edition, pg. 443

Explanation: Pregnanediol is most abundant plasma as well as urinary metabolite of progesterone. In plasma 80 % is bound to albumin and 18 % to corticosteroid binding globulin. Progesterone has short half-life and in liver it is converted to Pregnanediol and conjugated to glucoronic acid and excreted in urine.

In healthy female ovulation occurs when:
Before LH surge
After biphasic rise in basal body temp.
After follicular ripening by FSH
After cervical mucus breaks down

Answer: (c) After follicular ripening by FSH
Reference: Ganong's Review of Medical Physiology, 22nd edition, pg. 438, Boron and Boulpaep, Medical Physiology, 2nd edition.
Explanation:

1. 24–48 h after the estradiol peak, the LH surge takes place
This surge occurs at ~ day 14 of a 28-d cycle
A small FSH surge accompanies the LH surge
Ovulation occurs 36 h after the onset of the LH surge)Progesterone levels rise slightly just before ovulation



Common Signs of ovulation that occur in most women:
Change in cervical fluid. Cervical fluid that resembles "egg whites" is a sign that women is near ovulation or ovulating..
Change in basal body temperature. For most women, prior to ovulation, the basal body temperature is rather consistent. closer to ovulation, they may have a slight decline, but it will be followed by a sharp increase after ovulation. The increase in temperature is the sign that ovulation has just occurred.
Change in cervical position or firmness. The cervix goes through many changes as a woman ovulates. A woman may notice the clear signs of ovulation; her cervix will be soft, high, open and wet.

Which is correct about physiological findings seen after lying down?
Increase in cerebral blood flow
Increase in venous return to the heart
Decrease blood flow to the apex of lung
Decrease venous return to the heart
Answer: (b) Increase in venous return to the heart
Reference: Guyton and Hall text book of medical physiology, 12th edition, pg. 173.
Explanation: Lying down will cause decreased venous pooling to extremities so will increase the venous return to heart. Lying down increases perfusion to apex of lungs. Cerebral blood flow does not change with change in posture if the baroreflex function is not dearranged.

True about Fick's low of diffusion (Not Flick's Law, may be topographical error in exam paper)
A passive movement of molecule along concentration gradient
An active movement along the concentration gradient
An active movement against the concentration gradient
None of these are true

Answer: (a)A passive movement of molecule along concentration gradient
Reference: Ganong 24th e/ pg 7, 22nde/pg 4
Fick's low Diffusion

$$J=-DA\frac{\triangle c}{\triangle x}$$

Where J is the net rate of diffusion, D is the diffusion coefficient, A is the area, and $\triangle c/\triangle x$ is the concentration gradient. The minus sign indicates the direction of diffusion

FORENSIC MEDICINE

46. Priapism is seen in:
a. Cobra bite
b. Spanish fly poisoning
c. Scorpion bite
d. Viper bite

Answer (B) Spanish fly poisoning
Reference:: Reddy 27th edition page 490
Explanation: It is persistent abnormal erection of penis with pain and tenderness.
Spanish fly (Blister Beetle) can cause priapism.

47. Difficulty in identifying entry and exit wounds due to surgical alteration is also known as:
a. Mac naughten's rule
b. Kennedy's phenomenon
c. Alecjeffrey's rule
d. Edmond locard exchange principle

Answer (B) Kennedy's phenomenon
Ref: Reddy 27th edition page 203
Explanation: Kennedy Phenomenon is surgical intervention of firearm wound resulting in an artifact and hence rendering the wound difficult to interpret during autopsy as happend in Kennedy's case

48. Which of the following is a signature fracture
a. Depressed fracture
b. Ring fracture
c. Separation of sutures
d. Pond #

Answer (A), Depressed fracture
Ref: Reddy 27th edition page 216
Explanation: The outer table is driven into diploe, the inner table is fractured irregularly and to greater extent and may be comminuted.
Localized depressed fracture are caused by blows from heavy weapon with a small striking surface

49. Methanol poisoning .false is ??
a. Snow field vision
b. Fomepizole is a comp inhibitor of aldehyde dehydrogenase
c. Formic acid is responsbile for toxicity .
d. Min lethal dose is 1.25mg/ml

Answer (b) fomepizole is a comp inhibitor of aldehyde dehydrogenase
Refernce: Reddy 27th edition page 513
Explanation: Fomepizole is used as an antidote in methanol or ethylene glycol poisoning. Fomepizole is a competitive inhibitor of alcohol dehydrogenase, the enzyme that catalyzes the initial steps in the metabolism of ethylene glycol and methanol to their toxic metabolites. So this eliminates option C and marks B as the correct answer..

50. A child is burnt by hot water, the best method to calculate the surface area of the burnt areas is: forensic
a. Palm method
b. Lund and browder method

c. Rule of 9
d. Brocas method
Answer (B) Lund and browder method
Reference:: Reddy 27th edition page 284
Explanation : Estimation of percentage of body surface area Lund and Browder.
51. A girl coming with kerosene like odour on breath, lacrimation, pin point pupil, rhinorrhea, weakness. Which statement is false:
a. Atropine is the antidote
b. Plasma AChesterase has no prognostic value
c. Atropine reverses neuromuscular weakness
d. Activated charwal has no proven benefits
Answer (c) Atropine reverses neuromuscular weakness
Reference: Reddy 27th edition page 458
Explanation :Atropine is a muscarinic receptor antagonist and it is antidote used for organophosphorus poisoning. Activated charchol is not used in organophosphorus poisoning.

P.S.M

52. Number of Vision centers under Vision 2020, National Program for Control of Blindness are
a. 20
b. 200
c. 2000
d. 20000

Ans. (d) 20000
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Figure 5.3, Pg 298/ K Park, 22nd Ed., Pg 408
EXPLANATION
Proposed Structure for Vision 2020, (NPCB)
- Vision centers 20,000 (Primary level)
- Service centers 2,000 (Secondary level)
- Training centers 200 (Tertiary level)
- Centers for Excellence 20 (Tertiary level)

53. All can be used to reduce the risk of transmission of HIV to neonate in a pregnanct-woman except
a. Vaginal Delivery
b. Vitamin A supplementation
c. Stopping Breast feeding
d. Zidovudine to mother antenatal and newborn after delivery

Ans. (a) Vaginal Delivery
Reference: Dutta 7th Edition page 301-302, Williams Obs 23 Edition page 1248 onwards COGDT 10 Edition page 692-693
EXPLANATION: Vertical Transmission (mother to child transmission of HVI)
Vertical transmission can occur
- In utero
- During delivery
- After birth by breast feeding
- M/C time= peripartum (7-49%) >labour

Risk factors for Increased transmission
- High maternal viral load
- Low CD 4T cell count

- Chorioamnionitis
- Vitamin A deficiency

Methods to decrease vertical transmission-

I. Antiretroviral prophylaxis- Vertical transmission can be prevented by giving antireto viral therapy to mother and early prophylaxis to newborn. Zidovudine treatment is started from beginning of second trimester and continued till delivery. The newborn babies of HIV positive mothers are given prophylactic zidovudine for 6 weeks. Such treatment reduces the rate of HIV transmission by 22.5 to 25%

II. Cesarean section- Elective cesarean section reduces the risk of transmission by 87% in women on ART can by 50% in patients without zidovudine treatment. The efficacy of elective cesarean section among women with low viral loads is unknown, therefore ACOG recommends the use of cesarean delivery for women with viral load of 1000 copies/ml

III. Breast feeding –Vertical transmission is increased by breast feeding, and it is generally not recommended in HIV positive women.

In all developed countries –breast feeding is contraindicated in HIV

WHO (2008) has recommended continuing breast feeding promotion with early wearing by 6 months for women living in developing countries in which infectious diseases and malnutrition are the primary causes of infant deaths.

IV. Adjuvant therapies- which are being further studies for decreasing vertical transmission are

a. Vitamin A supplementation
b. Antiseptic washes

Micronutrients and Vertical transmission of HIV_ many prospective and Cohort studies have examined the relation of nutrition al status and vertical transmission of HIV, both in developing and developed countries. Evidence show that low serum Vitamin A concentration among HIV infected pregnant women are associated with an increased risk of vertical transmission. In the light of these observations, placebo controlled trials were conducted to assess the efficacy of vitamin A supplementation in reducing the risk of vertical transmission –but these trials have not given any conclusive evidences. So this option can be kept in +/- status

As fas as vaginal delivery is concerned, it has no role in decreasing vertical transmission.

54. A 3 year graduate MBBS programme was suggested by which committee?

a. Sundar Committee
b. Srivastava Committee
c. Expert Level Committee on Universal Health Coverage
d. Krishnan Committee

Ans. (c) Expert Level Committee on Universal Health Coverage

Reference: Universal Health Coverage in India, Planning Commission, Government of India, 2010

EXPLANATION

HLEG Recommendations

- High Level Expert Group (HLEG, Planning Commission, GOI) on Universal health Coverage has suggested 3½ year MBBS course for serving rural population
- HLEG was developed for XII Five Year Plan
- Rural doctors will be called as ‘Community Health Officers’
- 3½ Degree given: B.Sc. Community Health

55. ASHA gets remuneration on all except

a. Institutional delivery
b. Zero doses of OPV and BCG
c. Recording birth weight
d. Birth registration

Ans (b) Zero dose of OPV and BCG
Reference: Operational Guidelines for ASHA, NHRSC
EXPLANATION
ASHA payment mechanisms under JSY: ON 45th DAY
- 6 visits in Institutional deliveries (Day 3,7,14,21,28,42)
- 7 visits in home deliveries (Day 1,3,7,14,21,28,42)
- Birth weight record
- Immunized with BCG, First dose of OPV & DPT
- Birth registration
- Mother and child are safe

Other ASHA payments
- Institutional deliveries
- Arrange transport of AN mother
- Escort AN mother to facility
- Completed immunization upto 1 year and 2 years age
- Pulse Polio immunization
- Family planning services
- Sanitary napkins to adolescent girls
- Promote use of sanitary toilets
- DOTS provider
- Leprosy treatment
- P/S for Malaria
- Malaria treatment

56. 50% population having disease with estimated prevalence to be 45-55% with 95% of probability of identifying them minimum sample size required is
a. 100
b. 200
c. 300
d. 400

Ans. (d) 400
Reference: Applied Statistics in Health Sciences by Rao & Murthy, 1st Ed., Pg 105
EXPLANATION
Minimum sample size for prevalence calculation in Cross-sectional studies (Field surveys) is calculated by formula,
Sample size = 4pq/L2
Where, p= prevalence; q=1-p; l=error in estimation of prevalence
In the given question, p = 50% (50/100); q = 1-p = 1-0.50 = 0.50 (50/100); L=5% (5/100 as range permissible is 45-50% i.e. +5%)
So, Sample size = [4*50/100*50/100]/ [5/100]2
= 400

57. Social pathology is
a. Change in disease pattern due to change in lifestyle
b. Study of social problems which cause disease in population
c. Conflicts arising from new opportunities in transitional societies
d. Study of human relationships and behaviour

Ans. (b) Study of social problems which cause disease in population
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 644/ K Park, 22nd Ed., Pg 624

EXPLANATION
Social Pathology
o Social Pathology: Is the study of social problems which undermine the social, psy¬chological or economical health of the populations; it is used to describe relation¬ship between disease and social conditions
o Social pathology is uncovered by 'Social Surveys'
o Social Problems studied under social pathology:
o Social constraints:
 Poverty and destitution
 Illiteracy and ignorance
 Migration and environmental crisis
 Industrialization and Urbanization
o Social evils:
 Smoking and drinking
 Caste and casteism
 Gender bias and gender discrimination
 Child neglect and child abuse
 Child labour and child abandonment
 Stress and stress behaviour
 Crime and corruption
 Prostitution and STDs
o Social deviance:
 Drug abuse
 Juvenile delinquency
 Suicide

58. Number of health related goals in millennium development goals?
a. 1
b. 2
c. 3
d. 4

Ans(c) 3
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Annexure 11 & Pg 788/ K Park, 22nd Ed., Pg 11
EXPLANATION
Millennium Development Goals (MDGs)
o Description: In September 2000, 189 countries adopted UN Millennium Declara¬tion. Millennium Development Goals (MDGs) Goals place health at the heart of development and represent commitments by governments
o Baseline Year for MDGs: 1990
o Deadline year for MDGs: 2015
o There are 8 MDGs:
 Goal 1: Eradicate extreme poverty and hunger
 Goal 2: Universalise primary education
 Goal 3: Gender equality and women empowerment
 Goal 4: Reduce child mortality
 Goal 5: Improve maternal health
 Goal 6: Combat HIV/AIDS, malaria and other disease (Tuberculosis)Q
 Goal 7: Ensure environmental sustainability
 Goal 8: Develop global partnerships for development
o 3 out of 8 goals, 8 out of 18 targets required to achieve them and 18 out of 48 indica¬tors of progress are 'directly health related'
 Goal 4, 5 and 6 are 'directly health related'

- Goal 2 and 3 ‘do not pertain to health’

59. Which of the following diseases is not under surveillance in Integrated Disease Surveillance Project?
a. Snake bite
b. Acute Respiratory Tract Infections
c. Tuberculosis
d. Leptospirosis

Ans (a) Snake bite
Reference: IDSP. Internet (idsp.nic.in)
EXPLANATION
Diseases covered under IDSP (P-FORM)
COMMUNICABLE DISEASES UNDER IDSP
FOR THE PURPOSE OF SURVEILLANCE UNDER IDSP, THE PARAMEDICAL STAFF NEEDS TO BE FAMILIAR WITH
THE DISEASES THAT ARE TO BE REPORTED UNDER THE P FORM. THE LIST IS AS GIVEN BE-LOW:
1. ACUTE DIARRHOEAL DISEASE (INCLUDING ACUTE GASTROENTERITIS)
2. BACILLARY DYSENTERY
3. VIRAL HEPATITIS
4. ENTERIC FEVER
5. MALARIA
6. DENGUE/DENGUE HEMORRHAGIC FEVER(DHF)/ DENGUE SHOCK SYNDROME(DSS)
7. CHIKUNGUNYA
8. ACUTE ENCEPHALITIS SYNDROME(AES)
9. MENINGITIS
10. MEASLES
11. DIPHTHERIA
12. PERTUSSIS
13. CHICKEN POX
14. FEVER OF UNKNOWN ORIGIN(PUO)
15. ACUTE RESPIRATORY INFECTION (ARI)/INFLUENZA LIKE ILLNESS(ILI)
16. PNEUMONIA
17. LEPTOSPIROSIS
18. ACUTE FLACCID PARALYSIS < 15 YEARS OF AGE
19. DOG BITE
20. SNAKE BITE
21.ANY OTHER STATE SPECIFIC DISEASE (CHECK WITH YOUR DISTRICT SURVEILLANCE OF-FICER FOR ANY
ADDITIONAL LIST OF DISEASES)
22. UNUSUAL SYNDROME (NOT BEING CAPTURED BY ANY OF THE ABOVE)

60. Not included in the human poverty index is
a. % of population not surviving up to 40 yrs age
b. Underweight for age
c. Occupation
d. % population not using safe water supply

Ans(c) Occupation
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 58
EXPLANATION
Human Poverty Index (HPI)
- HPI measures: Deprivation in basic dimensions of human development

o HPI is complimentary to: Human Development Index (HDI)
o Components of HPI – I (Used for developing countries):
 Probability at birth of not surviving to age 40
 Adult Illiteracy Rate
 Un-weighted average of two indicators: % population not using an improved water source + % children underweight-for-age
o Components of HPI – II (Used for developed countries):
 Probability at birth of not surviving to age 60
 % adults (aged 16-65 years) lacking functional literacy skills
 % people living below poverty line (BPL)
 Rate of long term employment (12 months or more)

61. National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS), true is
a. Separate centre for stroke, DM, cancer
b. Implementation in some 5 states over 10 districts
c. District hospital has specialised facilities
d. Subcentre has facility for diagnosis and treatment

Ans(c) District hospital has specialised facilities
Reference: K Park, 22nd Ed., Pg 424-25
EXPLANATION
National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS)
o Introduction:
 Single centre for Cancer, Diabetes, Cardiovascular disease, Stroke
 100 districts in 21 states being covered in 11th Five year plan
 20,000 Subcentres and 700 Community health centres (CHCs) covered
o Activities at Sub-centres:
 Health promotion for behaviour and lifestyle change
 Opportunistic screening of BP, Blood glucose (Strip method) in age >30 years
 Referral to CHC of cases of DM, HT
o Activities at CHCs:
 Diagnosis and management at NCD clinic
 Home visits by nurse for bedridden cases
 Referral to District hospital for complicated cases
o Activities at District hospital:
 Health promotion
 Screening of population >30 years
 Diagnosis and management of cardiovascular diseases
 Home-based palliative care for chronic, debilitating, progressive patients
o Urban health check-up scheme for Diabetes and High BP:
 Screen urban slum population
 Screen population >30 years and pregnant females
o Cancer control in NPCDCS:
 Regional cancer control scheme: Regional cancer centres to act as Referrral centres for complicated cases
 Oncology wing development scheme
 Decentralized NGO scheme: IEC activities and early cancer detection
 IEC at Central level
 Research and training

62. Ridley Jopling Leprosy classification is a type of
a. Clinical, bacteriological, Immunological, epidemiological classification
b. Clinical, bacteriological, Immunological, therapeutic classification
c. Clinical, bacteriological, Immunological, histological classification
d. Operational classification

Ans(c) Clinical, bacteriological, Immunological, histological classification
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 281/ K Park, 22nd Ed., Pg 291
EXPLANATION
Classifications of Leprosy

Ridley Jopling classification	Indian classification	Madrid classification
TT (Tuberculoid)	Indeterminate	Indeterminate
BT (Borderline Tuberculoid)	Tuberculoid	Tuberculoid
BB (Borderline borderline)	Borderline	Borderline
BL(Borderline Lepromatous)	Lepromatous	Lepromatous
LL (Lepromatous Leprosy)	Pure Neuritic	

o Ridley Jopling classification is based on Immuno-histological scale

Operational Classification of Leprosy (according to skin smear positivity)

	Paucibacillary Leprosy (PBL)	Multibacillary Leprosy (MBL)
	BI < 2	BI ≥ 2
Included types	Indeterminate Polar tuberculoid (TT) Border tuberculoid (BT)	Polar lepromatous (LL) Borderline lepromatous (BL) Mid-borderline (BB)
Multidrug therapy (MDT) in NLEP (Drugs)	Rifampicin 600 mg OAMS Dapsone 100 mg OD	Rifampicin 600 mg OAMS Dapsone 100 mg OD Clofazimine 300 mg OAMS, 50mg OD
Treatment duration	6 months	12 months
Follow up (after treatment)	Annually for 2 yrs	Annually for 5 yrs

63. Vaccine for meningococcal meningitis should be routinely given to
a. Laboratory workers
b. Young adolescents
c. 4-8 years old children
d. Elderly population

Ans. (b) Young adolescents
Reference: CDC Meningococcal Vaccine Guidelines
EXPLANATION
Meningococcal Vaccine recommendations
o Routinely:
 All adolescents 11-12 years age (1st dose at 11-12 years age, followed by Booster dose at 16 years age)
o Other groups:
 Adolescents 13-18 years
 Young people 19-21 years

64. WHO criteria for High endemicity for Meningococcal disease include
a. 0.1%
b. 0.01%
c. 0.001%
d. 1.0%

Ans(b) 0.01%
Reference: K Park, 22nd Ed., Pg 156
EXPLANATION
WHO Classification of Meningococcal areas
- Low endemicity: < 2 cases per 100,000 population per year
- Moderate endemicity: 2-10 cases per 100,000 population per year
- High endemicity: > 10 cases per 100,000 population per year (0.01%)
- Epidemic: > 100 cases per 100,000 population per year (0.1%)

65. If Blindness is surveyed using Schools as compared to Population Surveys, then estimation of prevalence of blindness will have?
a. Overestimation
b. Underestimation
c. Remains same
d. None of them is used for evaluation

Ans(b) Underestimation
Reference: K. Park, 22nd Ed., Pg 371
EXPLANATION
Blindness situation in India
- Estimated prevalence of Blindness in India (Total): 11.2 per 1000 population
- Estimated prevalence of Blindness in India (0-14 years): 0.1 per 1000 population
- Estimated prevalence of Blindness in India (15-49 years): 0.6 per 1000 population
- Estimated prevalence of Blindness in India (50+ years): 77.3 per 1000 population

So if Schools are used where only refractive errors generally constitute blindness (that too very few are actually blind i.e. <6/60) AS COMPARED TO POPULATION (where age-related cataract constitute as major cause of blindness), it would lead to underestimation of prevalence of blindness in the country

66. Type of Growth Charts used by Anganwadi workers (ICDS) for growth monitoring
a. NCHS
b. IAP
c. MRGS
d. CDC

Ans(c) MRGS
Reference: K Park, 22nd Ed., Pg 504-506
EXPLANATION
ICDS Growth Chart
- In NRHM and ICDS, Government of India has adopted WHO Child Growth Standards 2006 (also known as MGRS 'Multicentre Growth Reference Study' Standards)
  - Normal zone
  - Below -2 SD: Malnutrition
  - Below -3 SD: Severe Malnutrition

67. Maximum tolerated dose of a new drug is evaluated in

a. Phase 1
b. Phase 2
c. Phase 3
d. Phase 4

Ans(a) Phase 1
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 106
EXPLANATION
Pre-Clinical & Clinical Trials

Phase	Unit of study	Purpose
PRE-CLINICAL TRIALS/ LAB-EXPERIMENTS		
Phase 0	Animals	Pretesting in animals
CLINICAL TRIALS		
Phase I	Healthy human volunteers	Establishment of safety and non-toxicity
Phase II	Patients	Establishment of effectiveness
Phase III	Patients	Comparison with older/ existing drug(s)
Phase IV	Patients	Assessment of long term side effects

o Phase 1 Clinical trials is used to evaluate Maximum tolerated dose (MTD) of a new drug

68. In a population of 100 prevalence of candida glabrata was found to be 80%. If the investigator has to repeat the prevalence with 95% confidence what will the prevalence be?
a. 78-82%
b. 76-84%
c. 72-88%
d. 74-86%

Ans (c) 72-88%
Reference: Simple Biostatistics by Indrayan, 1st Ed., Pg 146
Explanation:
Confidence Intervals for Population proportions (For 95% Confidence)

$CI = P + 2\ SEP = P + 2\ \sqrt{pq/n}$

In the given question, P=0.80 (80%); p=0.80; q= 1-p = 1-0.80 = 0.20; n=100
$CI = 0.80 + 2\ \sqrt{0.8*0.2/100} = 0.80 + 0.08 = 0.72, 0.88$ (72%, 88%)

69. Most common operation done by an Ophthalmologist in district hospital
a. Phacoemulsification
b. Trabeculectomy
c. Bilateral lamellar tarsal rotation
d. Dacrocystorhinostomy

Ans(a) Phacoemulsification
Reference: IPHS Standards: Guidelines for District Hospitals 2012, Government of India, 2012, Pg 10
EXPLANATION
Ophthalmologic services at District hospital

OPD Procedures	IPD Procedures
Refraction (by using snellen's chart) Refraction (by auto refrectro meter) Syringing and Probing Foreign Body Removal (conjuctival) Foreign Body Removal (Corneal) Epilation Suture Removal Sub-conjuctival Injection Retrobular Injection (Alcohol etc.) Tonometry Biometry/Keratometry Automated Perimetry Pterygium Excision Syringing & Probing I & C of chalazion Wart Excision Stye Cauterization (Thermal) Conjuctival Resuturing Corneal Scarping I & D Lid Abscess Uncomplicated Lid Tear Indirect Opthalmoscopy Retinoscopy	Examination under GA Canthotomy Paracentesis Air Injection & Resuturing Enucleation with Implant Enucleaion without Implant Perforating Coneo Scleral Injury Repair Cataract Extraction with IOL Glaucoma (Trabeculectomy) Cutting of Iris Prolapse Small Lid Turnour Excision Conjuctival Cyst Capsulotomy Ant. Chamber Wash Evisceration

- o Cataract surgery with IOL implantation is the most common surgery at District hospital
- o ECCE +IOL is Most common followed by Phacoemulsification

[PLEASE NOTE: After consultations with few Ophthalmologists at District level, in my opinion, Phacoemulsification at district level is much more common than other choices (though no written reference could be located on web or in library books/ journals)]

70. If confidence limit is increased, then
a. Previously insignificant data becomes significant
b. Previously significant data becomes insignificant
c. No effect on significance
d. Any change can happen

Ans(b) Previously significant data becomes insignificant
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 106
EXPLANATION
If Confidence limit is increased
- o Then degree of assurance of intervals containing the population mean is increased, BUT getting the value of population mean become less precise
- o Previously significant data will now become less significant

71. Which is false regarding period of communicability?
a. Measles 1-2 days before to 3 days after rash
b. Chickenpox 1-2 days before to 4-5 days after rash
c. Mumps 4-6 days before to 1 week after rash

d. German measles 7 days before and after rash

Ans(a) Measles 1-2 days before to 3 days after rash
Reference: Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 245
EXPLANATION
Period of Communicability
- Chicken pox: 1 – 2 days before to 4 – 5 days after appearance of rash
- Measles: 4 days before to 5 days after appearance of rash
- Rubella: 7 days before symptoms to 7 days after appearance of rash
- Mumps: 4 – 6 days before symptoms to 7 days thereafter
- Influenza: 1 – 2 days before to 1 – 2 days after onset of symptoms
- Diphtheria: 14 – 28 days from disease onset
- Pertussis: 7 days after exposure to 3 weeks after paroxysmal stage
- Meningococccus: Until absent from nasal and throat discharges
- Tuberculosis: As long as not treated
- Poliomyelitis: 7 – 10 days before and after onset of symptoms
- Hepatitis A: 2 weeks before to 1 week after onset of jaundice
- Hepatitis B: Till disappearance of HBsAg & appearance of anti-HBs
- Tetanus: None

72. Due to use of preservative for refrigerated foods following cancer can be reduced
a. Stomach Cancer
b. Esophagus Cancer
c. Colon Cancer
d. Oropharyngeal Cancer

Ans(a) Stomach Cancer
Reference: K Park, 22nd Ed., Pg 361/ Cancer & Nutrition by CB Simone, 3rd Ed., Pg 179
EXPLANATION
Decline of Stomach cancer in Industrialized nations is due to
- Improved food preservation practices (esp refrigerated foods)
- Better nutrition (esp vitamins from fresh fruits/ vegetables)
- Lesser consumption of preserved, cured, salted foods
- Reduced use of salt pickling
- Lesser consumption of smoked foods

73. Dose of vitamin A given to post partum woman
a. 50000 IU
b. 1 lakh IU
c. 2 lakh IU
d. 3 lakh IU

Ans(c) 2 lakh IU
Reference: WHO Vitamin A Supplementation Guidelines]
EXPLANATION
Potential target groups and immunization contacts in countries with vitamin A deficiency WHO GUIDELINES

Target group	Immunization contact	Vitamin A dose
All mothers irrespective of their mode of infant feeding up to six weeks postpartum if they have not received vitamin A supplementation after delivery	BCG, OPV-0 or DTP-1 up to 6 weeks	200 000 IU
Infants aged 9–11 months		
Children aged 12 months and older	Measles vaccine contact	100 000 IU 200 000 IU
Children aged 1–4 years	Booster doses* Special campaigns* Delayed primary immunization doses*	200 000 IU

* The optimal interval between doses is four to six months. A dose should not be given too soon after a previous dose of vitamin A supplement: the minimum recommended interval between doses for the prevention of vitamin A deficiency is one month (the interval can be reduced in order to treat clinical vitamin A deficiency and measles cases).

[PLEASE NOTE: Currently WHO DOESNOT recommend Vitamin A supplementation to Postpartum females]

E.N.T

74. BAHA is used for which of these
a. Cochlear malformation
b. SNHL
c. Bl acoustic neuroma
d. Boy with microtionea and auditory canal atresia

Answer: (d), Boy with microtionea and auditory canal atresia
Reference: Dhingra 5th Ed. Pg. 136-137
Explanation: Boy with microtia and auditory canal atresia baha stands for “bone anchoring hearing aid”. This is surgically fitted onto the mastoid bone . it amplifies sound and transmits the sound into the ear through bony conduction. It has two main indications

i. When air conduction pathways cannot be used like in case of microtia and auditory canal atresia
ii. Small child requiring hearing aid.

75. Facial recess not surrounded by-
a. Short proces f incus
b. Chorda tympani
c. Facial nerve
d. Stapedius tendon

Answer: (d) Stapedius tendon
Reference: Dhingra 5th Ed. Pg. 7
Explanation: Posterior wall of middle ear has four recess where cholesteotoma may hide. These are

i. Facial recess
ii. Sinus tympani
iii. Posterior tympanic sinus
iv. Lateral tympanic sinus

76. A patient with h/o right ear discharge undergoes mastoidectomy but his symptoms r not relieved nd he presents with purulent discharge, vertigo nd deafness.. diagnosis:
a. Labyrinthitis

b. Thrombophlebitis
c. Meningitis
d. Petrositis

Answer: (a) Labyrinthitis.

Reference: Dhingra 4th Ed. Pg. 22,23,41

Explanation: A pt of ear discharge undergoing mastoidectomy is probably suffering from unsafe csom. If the symptoms are not relieved after surgery and also has vertigo nd deafness will probably has some complication of csom. among the common complications of csom only two can cause vertigo(a symptom in the above patient). These are

i. Labyrinthine fistula and
ii. Labyrinthitis

77. A 55 yr man presented with CHL, fullness sensation in ear , no discharge, T.M. Normal, Tympanometry shows B type graph. What is the Next Step of management

a. Myringotomy with grommet
b. Evaluation of Nasopharyngeal Mass
c. Antibiotics
d. Observation

Answer (b) Evaluation of Nasopharyngeal Mass

Reference: Dhingra 261-266

Explanation: This is a case of unilateral glue ear in an adult. One of the most serious primary disease that may cause glue ear in adult is nasopharyngeal carcinoma. Nasopharyngeal ca is most commonly seen in fossa of rosenmuller which is just behind the eustachean tube. This tube gets blocked by this ca to cause glue ear. The best investigation for ca nasopharynx are ct scan of nasopharynx and nasopharyngoscopy.

78. 50 year old male Unilateral SOM B type tympanogram intact TM.... MANAGEMENT?

a. Myringotomy with grommet insertion
b. Endoscopy of nesophyrax
c. Examination under microscope
d. Adenoidectomy and grommet insertion.

Answer (a) Myringotomy with grommet insertion

Reference: Dhingra 5th Ed. Pg. 71

Explanation:This is a case of unilateral glue ear in an adult. One of the most serious primary disease that may cause glue ear in adult is nasopharyngeal carcinoma. Nasopharyngeal ca is most commonly seen in fossa of rosenmuller which is just behind the eustachean tube. This tube gets blocked by this cancer to cause glue ear. The best investigation for ca nasopharynx are ct scan of nasopharynx and nasopharyngoscopy

79. Patient presents with 4×5 cm lymph node ,mobile firm , not fixed in left lateral neck. Clinical examination and PET scan cannot identify primary. Examination of nose oral cavity and pharynx is normal What is the stage?

a. T0N2Mx
b. T1 N2aM0
c. T0N2aMx
d. T1N2aMx

Answer: (d) T1N2aMx

Ref: Dhingra 5th Pg. 266

Explanation:

TNM CLASSIFICATION OF NASOPHARYNGEAL CARCINOMA (AJC 2002)

PRIMARY TUMOUR			DISTANT METASTASIS			
T_1	TUMOUR CONFINED TO THE NASOPHARYNX		M_X	DISTANT METASTASIS CANNOT BE ASSESSED		
T_2	TUMOUR EXTENDS TO SOFT TISSUES OF OROPHARYNX AND\OR NASAL FOSSA T_{2A} WITHOUT PARAPHARYNGEAL EXTENSION T_{2B} WITH PARAPHYNGEAL EXTENSION		M_0	NO DISTANT METASTASIS		
T_3	TUMOUR INVADES BONY STRUCTURES AND /OR PARANASAL SINUSES		M_1	DISTANT METASTASIS		
T_4	TUMOUR WITH INTRACRANIAL EXTENSION AND /OR INVOLVEMENT OF CRANIAL NERVES, INFRATEMPORAL FOSSA, HYPOPHARYNX OR MASTICATOR SPACE		**STAGE GROUPING**			
REGIONAL LYMPH NODES			0	T_{IS}	N_0	M_0
THE DISTRIBUTION AND THE PROGNOSTIC IMPACT OF REGIONAL LYMPH NODE SPREAD FROM NASOPHARYNX CANCER, PARTICULARLY OF HEAD AND NECK MUCOSAL CANCERS AND JUSTIFIES USE OF A DIFFERENT N CLASSIFICATION SCHEME			I	T_1	N_0	M_0
N_X	REGIONAL LYMPH NODES CANNOT BE ASSESSED		IIA	T_{2A}	N_0	M_0
N_0	NO REGIONAL LYMPH NODE METASTASIS		IIB	T_1	N_1	M_0
N_1	UNILATERAL METASTASIS IN LYMPH NODE (S), 6CM OR LESS IN GREATEST DIMENSION, ABOVE THE SUPRACLAVICULAR FOSSA			T_{2A}	N_1	M_0
N_2	BILATERAL METASTASIS IN LYMPH NODES, 6CM OR LESS IN GREATEST DIMENSION, ABOVE THE SUPRACLAVICULAR FOSSA			T_2	N_1	M_0
N_3	METASTASIS IN A LYMPH NODES(S) T3A GREATER THAN 6 CM IN DIMENSION T3B IN THE SUPRACLAVICUALR FOSSA			T_{2B}	N_0,N_1	M_0
			III	T_1	N_2	M_0
				T_{2A}, T_{2B}	N_2	M_0
				T_3	N_0, N_1, N_2	M_0
			IVA	T_4	N_0, N_1, N_2	M_0
			IVB	ANY T	N_3	M_0
			IVC	ANY T	ANY N	M_1

80. Which of the following nerve injury leads to loss of lacrimal gland secretion
a. Greater petrosal nerve
b. Lesser petrosal nerve
c. Nasociliary nerve
d. Supraorbital nerve?
Ans: A, Greater petrosal nerve
Ref: Parson 29th Edition pg. 496-497
Exp: The greater (superficial) petrosal nerve carries gustatory (taste) and parasympathetic fibres. Postganglionic parasympathetic fibres from pterygopalatine ganglion supply lacrimal gland and the mucosal glands of the nose, palate, and pharynx. The gustatory fibres do not relay in the ganglion and are distributed to the palate.

81. A75 years old diabetic male patientpresent with ear discharge. On examination there was granulation tissue at external auditory canal with facial nerve palsy and dizziness. Diagnosis is
a. Malignant otitis external
b. Otitis Externa Hemorrhagica
c. Diffuse otitis externe
d. Ototmycosis
Answer: (a) Malignant otitis external
Reference: Dhingra 5th Ed. Pg. 58

Explanation: Malignant (necrotizing) otits externa it is an inflammatory condition caused by pseudomonas infection usually in the elderly diabetics, or in those on immunosuppressive drugs. Its early manifestation resemble diffuse otitis externa but there is excruciating pain and appearance of granulations in the meatus. Facial paralysis is common. Infection may spread to the skull base and jugular foramen causing multiple cranial nerve palsies. Anteriorly, infection spreads to temporomandibular fossa, posteriorly to the mastoid and medially into the middle ear and petrous bone. CT scan is useful, to know the extent of disease.

Treatment consist of high doses of i.v antibiotics directed against pseudomonas (tobramycin, antibiotics directed against pseudomonas (tobramycin, ticarcillin or third generation cephralosporins). Antibiotics are given for 6-8 weeks or longer. Diabetes should be controlled. Surgical debridement of devitalized tissue and bone should done judiciously. Radical resenctions have been abandoned in favour of prolonged intensive medical therapy.

OPHTHALOMOLOGY

82. False about acute conjunctivitis:
a. Vision not affected
b. Cornea infiltrates
c. Pupil remains unaffected
d. Topical antibiotics is the treatment

Answer: (b) Cornea infiltrates
Reference: Parsons 21st Edition Page 166-167
Explanation: "Neisseria gonorrhoeae is a bun-shaped Gram-negative diplococcus, found within both leucocytes and epithelial cells. N. Catarrhalis and N. Meningitides, both gram-negative in the conjunctival sac. They may be differentiated from the gonococcus by agglutination tests. N. Catarrhalis is rarely found in acute conjunctivitis, but may be seen in chronic forms.

Clinical features: The disease is acute, occurring usually in adult males, often developing first in the right eye and is due to direct infection from the genitals. Apart from severe purulent conjunctivitis there is a marked tendency to involvement of the cornea. Constitutional disturbance, including a rise of temperature and mental depression, may also occur.

The incubation period is a few hours to 3 days. There after, the upper lid becomes swollen and tense, overhanging the lower lid and edged with pus. Eversion, which is difficult, shows that the palpebral conjunctiva is deep red and velvety; rarely there is a membrane. There is intense pain and the preauricualr lymph node is enlarged and tender and may suppurate. After 2 or 3 weeks the purulent discharge diminishes, but subacute conjunctivitis with papillary thickening of the conjunctive persists for several weeks longer. The gonococcus is still present, a point of great importance, both in terms of contagion and treatment. No immunity is conferred by the attack.

The most important point in diagnosis is the coincidence of urethritis. The most important point in prognosis is the involvement of the cornea.

The gonococcus is capable of invading the normal cornea through an intact epithelium. Corneal complications are the rule, and constitute the cause of blindness. There may be diffuse haziness of the whole cornea, with grey or yellow spots near the centre. Ulcers may occur at any part, and are due to necrosis of the epithelium through direct invasion by the organisms. Marginal ulceration, which may extend completely round the cornea, may be due to retention of pus in the angle formed by the chemotic conjunctiva. When ulceration has commenced, it progresses rapidly and deeply and perforation is common with all its attendant dangers. The greatest care should therefore be taken to prevent injury to the cornea during diagnosis and treatment.

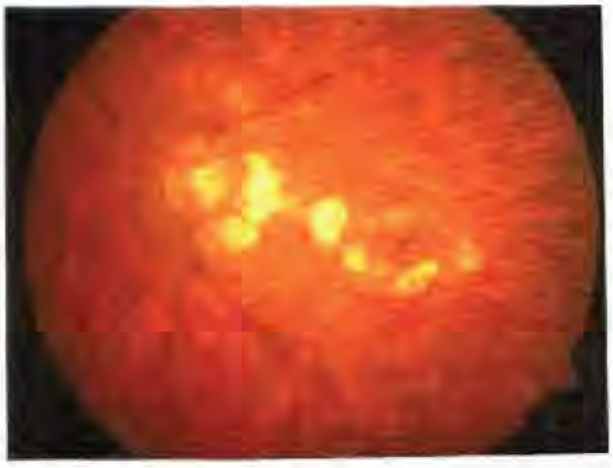
Treatment: Specific antigonococcal therapy is initiated based on the findings of intracellular Gram-negative diplococcic on conjunctival scaraping and smear examination or on clinical suspicion.

83. Most common presentation of retinoblastoma:
e. Leucokoria with pseudohypopyon
f. Leucokoria with hyphema
g. Leucokoria with heterochromiairidis
h. Leucokoria with strabismus

Answer: (d) Leucokoria with strabismus
Reference: Abramson DH et all 1998
Explanation:
A retrospective chart review was performed on the charts of 1265 patients with retinoblastoma who were on file at New York Hospital and whose conditions had been diagnosed between the years 1960 and 1990. The mean follow-up was 90 months, ranging from 0 to 409 months. Thirty-two distinct presenting signs of retinoblastoma were identified, the most common of which were leukocoria (56.2%), strabismus (23.6%), poor vision (7.7%), and family history (6.8%). No correlation was found between any of the presenting signs and laterality, sex, race, or survival. Leukocoria correlated to Reese-Ellsworth Group Va or Vb, whereas strabismus was invariably associated with either macular tumors or macular retinal detachments. Eighty-three (96.5%) patients presenting with a family history did so before the age of 24 months. The presenting sign leading to a diagnosis of retinoblastoma was correlated with degree of advancement and tumor location. Leukocoria and strabismus are the most common presenting signs, with leukocoria correlated to more advanced disease and strabismus always associated with macular involvement. Vitreous hemorrhage (1 case, 0.1%), microphthalmos (4 cases, 0.3%), and orbital cellulitis (3 cases, 0.2%) are extremely rare presenting findings in retinoblastoma.

84. Salt n pepper retinopathy is not seen with:
i. Phenothiazine toxicity
j. Congenital rubella
k. Old retinal detachment
l. Fundus flavimaculatus
Answer: (d) Fundus flavimaculatus
Reference: Parsons 21st Edition Page 303-312
Explanation:
Salt and pepper retinopathy
- Congenital Rubella
- Leber's congenital amaurosis
- Congenital Syphilis
- Cystinosis
- Albinism (carrier state)
- Retinitis pigmentosa (carrier state)
- Choroideremia (carrier state)
- Old retinal detachment
- Phenothiazine toxicity

85. Rhegmatogenous RD is not seen with:
m. Pseudophakia
n. Hyperopia
o. Lattice degeneration
p. Trauma
Answer: (b) hyperopia
Reference: Parsons 21st Edition page 318
Explanation: Myopic Choriretinal degeneration



Pathological myopia is associated with a highly myopic refractive error, usually more than 6D of myopia, with an elongated axial length and chorioretinal degeneration. Peripapillary atrophy, temporal crescent, macular atrophy, Foster-Fuchs, spot, lacquer cracks, lattice degeneration and diffuse chorioretinal atrophy are seen in various degrees and combination in these case.

86. Most cancer in women exhibiting metastasis to eyes:

q. Ovarian cancer
r. Endometrial cancer
s. Cervical cancer
t. Breast cancer

Answer: D, Breast cancer

Reference: JAMES J. AUGSBURGER RUDOLF GUTHOFF, Chapter 148 – Metastatic Cancer to the Eye

Explanation:

- Patients who have a cancer (usually a carcinoma) that arises in some bodily organ or tissue other than the eye occasionally develop implantation tumors (metastases) within the eye. Most intraocular metastatic tumors involve the choroid, but similar lesions also affect the iris, ciliary body, optic nerve, neural retina, and vitreous in some patients. About 80% of affected persons present with a single tumor in only one eye. The other 20% have multiple tumors, bilateral tumors, or both. The presence of metastatic cancer in the eye poses a substantial risk to the patient for visual deterioration and possibly total blindness in the affected eye. Fortunately, treatment of such tumors is usually highly effective in terms of both local tumor control and preservation of sight. Unfortunately, metastatic cancer to the eye is a poor prognostic sign for long-term survival.
- In women, the most common malignancy that gives rise to metastatic carcinoma to the eye is breast cancer. In men, the most common primary cancer type appears to be lung cancer. Most patients who develop metastatic carcinoma to the eye have a known prior cancer and frequently other known sites of metastasis as well. However, approximately 25% of individuals who are found to have metastatic carcinoma in the eye develop that condition as the initial manifestation of their cancer

87. Sudden loss of vision in a 65 year old diabetes mellitus man, which was preceded by blurring of vision. the main investigation to be done is :

a. Homocystiene
b. ACE level
c. Creatinine
d. Gold

Answer: (a) Homocysteine

Reference: CMDT 2012/page 1620

Explanation:

Currently, a large number of studies have attempted to elucidate relationship of vascular complication in diabetics and nondiabetics with hyperhomocysteinemia. The Hoorn study99 failed to demonstrate any association between homocystein levels and cardiovascular autonomic function in either diabetic or nondiabetic subjects. In HOPE-2 study, supplements of vitamins, folic acid, B6 and B12 did not reduce the incidence of major cardiovascular events. 100 The homocysteine levels decreased by 2.4 micromol/litre in the active treatment group, while they rose by 0.8 micromolo/litre in the placebo group. However, these data are viti-

ated by the fact that the placebo group also received folic acid from the fortified cereals. On the other hand, MTHER gene polymorphism was associated with raised homocystiene levels and increased macroangiopathy (odd ratio 1.94, CI 95% 1.31-2.89) in the Chinese population. 101 Raised homocysteine levels produced increased reactive oxygen species and platelet hyperactivity in type 2 diabetes mellitus

88. A patient presented with corneal ulcer which later showed a perforation. On gram staining a gram negative coccoid oxidase positive

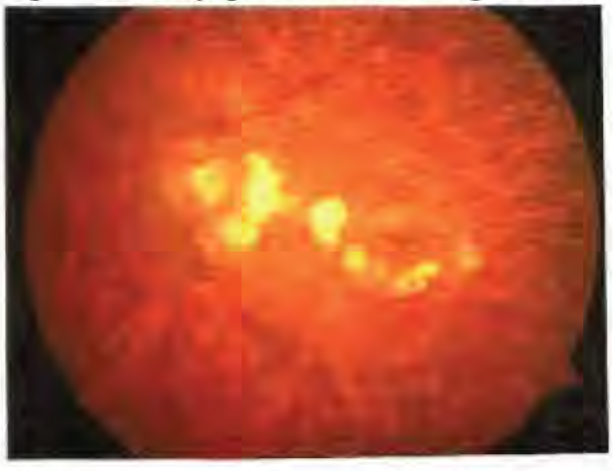
a. Moraxella
b. Neisseria
c. Streptococcua Pyogenes
d. Chaylamydia

Answer(b), Neisseria
Reference: Parson Disease of the Eye 21st Edition page 194
Explanation: Aetiology :Suppurative keratitis or corneal ulcer is due to organisms that produce toxins which cause tissue death (necrosis) and pus formation in the corneal tissue. Purulent keratitis is nearly always exogenous, due to pyogenic bacteria such as Pseudomanas, Staphylococcus aureus and albus, Pneumococcus, Neisseria gonorrhoea, Escherichia coli, etc.) which invade the cornea from without. It has been noted that the only organisms known to be able to invade normal corneal epithelium are N. Gonorhoeae and Corynebacterium diphtheria; but most other bacteria (e.g. pneumococi) are capable of producing ulceration when the epithelium is damaged. Organisms such as staphylococci may lead to superficial erosions initially which coalesce to form frank ulcers.

89. Myopics and retinal degeneration true is?

a. Hypermyopia
b Myopia < 6D
c. Teen & elder patient
d. Hyperopia

Answer (b) Myopia < 6D
Reference: Parsons 21st Edition page318
Explanation: Myopic Choriretinal degeneration



Pathological myopia is associated with a highly myopic refractive error, usually more than 6D of myopia, with an elongated axial length and chorioretinal degeneration. Peripapillary atrophy, temporal crescent, macular atrophy, Foster-Fuchs, spot, lacquer cracks, lattice degeneration and diffuse chorioretinal atrophy are seen in various degrees and combination in these case.

90. Chalzion histopathology?

a. Lipogranulomatous degeneration
b. Xantho granuloma
c. Caseous necrosis
d. Suppurative

Answer: (a) Lipogranulomatous degeneration
Reference: Parson's Disease of the Eye 21st Edition Page 443
Explanation:

Also known as tarsal or meibomian cyst
It is not a cyst. It results from obstruction of a sebaceous gland either meibomian or Zeis. Extravasated lipid material produces a surrounding chronic lipogranulomatous inflammation (Yanoff & Duker Ophthalmology)
Acute lesions are treated with hot compresses while chronic chalazia are treated using intralesional corticosteroid (e.g. Triamcinolone acetonide) or by surgical drainage.

91. In which of the following calcification is not seen
a. Retinoblastoma
b. Primary hyperplastic persistent vitreous
c. Choroid osteoma
d. Optic nerve drusenz

Answer: (b) Primary hyperplastic persistent vitreous
Reference: Parson's Disease of the Eye 21st Edition
Explanation:
Causes of Intraocular Calcifications
i. Retinoblastoma (>50% of all cases)
ii. Astrocytichamartoma
iii. Choroidalosteoma
iv. Optic drusen
v. Scleral calcifications in systemic hypercalcemic states
vi. Retrolental fibroplasias
vii. Phthisis bulbi

92. Most common Non hogdkin lymphoma of orbit is
a. B cell
b. T cell
c. NK Cell
d. Plasma cell

Answer: B cell
Reference:Paron's diseases of the Eye page 365-369
Explanation: Orbital lymphoma is common type of non-Hodgkin lymphoma that occurs near or on the eye. Common symptoms include decreased vision and uveitis. Orbital lymphoma can be diagnosed via a biopsy of the eye and is usually treated with Radiotherapy or with combination with chemotherapy.
Symptoms
Primary visible symptoms of ocular lymphoma include proptosis and a visible mass in the eye. Other symptoms are due to mass effect.
Pathophysiology
Recent studies have detected the presence of viral DNA in ocular lymphoma cells. This implies that pathogens play a role in ocular lymphoma. Other studies have found that the aging population, the increasing number of immunosuppressive drugs, and theAIDS epidemic have also contributed to the increased incidence of Non-Hodgkin lymphomas.
Ocular MALT lymphomas may also be associated with Chlamydia psittaci, although whether or not this is the case is still debated.
Follicular lymphoma, diffuse large B cell lymphoma, mantle cell lymphoma, B-cell chronic lymphocytic leukemia, peripheral T-cell lymphoma, and natural killer cell lymphoma have also been reported to affect the orbit
Epidemiology
55% of all lymphoma cases in adults and 10% in older patients is a form of ocular lymphoma. In 2008, a prediction by the National Cancer Institute Surveillance, estimated that in 1,340 men and 1,050 women would be diagnosed with eye cancer and 240 people would die of the disease that year Orbital lymphoma is more prevalent in Asia and Europe than in the United States.
Although intraocular lymphoma is rare, the number of cases per year is rising, affecting mainly people in their seventies and immunocompromised patients A recent study has shown that ocular lymphoma is more

prevalent in women than men.
The survival rate is approximately 60% after 5 years.
Types
There are two types of ocular lymphomas: intraocular lymphomas and adnexal lymphomas. An intraocular lymphoma occurs within the eye, while an adnexal lymphoma occurs outside, but adjoined to the eye.
Treatment
Radiotherapy is the most effective treatment for local disease either as the sole treatment for low-grade lymphoma or in combination with chemotherapy for intermediate- and high-grade lymphoma Radiotherapy dose in range of 30-45 Gy administered in fractions are advised in treating the local orbital lymphomas

93. OCREOPLASMIN is a recombinant protease & it is used to treat
a. Retinal break
b. Diabetic mellitus macular edema
c. Uveovitrealmembranbe adhesion
d. Submacular bleeding

Answer: (c) Uveovitrealmembranbe adhesion
Reference: Current and Potential Uses of Ocriplasmin Jeffrey S 05/05/2013
Explanation: Many attempts have been made to develop a pharmacologic agent that could promote enzymatic vitreolysis. Until now, none had been successful in at inducing both synchesis and syneresis without adversely affecting the retina. Phase III data for ocriplasmin has been published and its Food and Drug Administration approval has confirmed that there is finally a viable pharmacologic option for symptomatic vitreomacular adhesion.

There are two primary indications for ocriplasmin. The first is for patients who have mild to moderate symptomatic VMA, and also have good visual acuity. Patients may be experiencing metamorphopsia, but test 20/40 or better on a Snellen visual acuity chart. Metamorphopsia can be tremendously disabling to functional capabilities, especially for those whose work requires them to read frequently or perform detailed visual tasks. However, vitrectomy surgery would not be a viable option for this group, because their vision is too good to risk the complications associated with surgery, including cataract formation, retinal tear, retinal detachment, bleeding and end-ophthalmitis.6 Historically, disease management for these patients has been careful observation, hoping the VMA would spontaneously resolve. However, the literature shows that many do progress and lose vision.7 The FDA approval of ocriplasmin provided surgeons with a minimally invasive means of treating these patients who previously had no viable option.

The second set of patients are those with more moderate VMA whose visual acuity has deteriorated to 20/80 or worse, sufficient to justify surgery. Ocriplasmin is the ideal first choice in these patients. I have found that it does not require drops before or after, nor any eye patch, and the patient need not be in the prone position. Administering the injection is very straightforward and patients go home shortly thereafter. It is important to note that the large majority of responders demonstrated resolution of VMA by day seven, and all did so by day 28 of the study.

94. Correct match of drug and action is :
a. Brimonidine decrease aqueous production
b. Latanoprost carbonic anhydrase inhbtor
c. Pilocarpine increases uvoescleralpoutflow
d. Betaxolol increases trabecular outflow

Answer: (a) Brimonidine decrease aqueous production
Reference: Drug Facts and Comperisons 2006/2257
Explanation: The relationship between ciliary perfusion and aqueous production is poorly understood. It was recently reported that aqueous production decreases when ciliary blood flow is reduced by lowering the ocular perfusion pressure, and hypothesized that drug-induced reduction of ciliary blood flow would also decrease aqueous production. alpha2 adrenergic agonist (brimonidine) formulated for topical application. When used acutely, brimonidine decreases intraocular pressure (IOP) by suppressing aqueous production, although its mechanism of action is unclear

95. A girl with short stature widely spaced nipples and primary amennorhea. Karyotype
a. 47XXX
b. 47XYY
c. 45XO
d. 46XX
Answer: (c) 45XO
Reference: D.C Dutta's Text Book of Gynaecology 6th Edition page 22-23
Explanation:
Turner's Syndrome
- In Turner 's syndrome the gonads are not properly (streak gonads)
- The ovary is not properly developed and it cannot secrete adequate amount of estrogen
- This leads to lack of secondary sexual characteristic
- Breast is not developed properly
- Uterus is not developed properly in most of the patients who have not received estrogen therapy

Turner;s syndrome
- Underdeveloped uterus
- Undeveloped breast
- Primary amenorrhoea

96. A woman after normal labour suddenly goes into shock. Diagnosis:
a. PPH
b. inversion of uterus
c. Amniotic fluid embolism
d. Eclampsia
Answer: (b) inversion of uterus
Reference: Munroken's operative obstetric 10th Edition page 69, 476: I m Donald
Explanation:
- The patient went into unexplained shock after postpartum
- Both unterine inversion and amniotic fluid embolism can cause unexplained shock
- Uterine inversion is more common and important cause of unexplained shock than amniotic fluid embolism

Munrokerr Further adds
Uterine inversion is the most important
Three degrees of inversion are generally described
i. Where the inverted fundus reaches the internal os
ii. Where the whole body of the uterus is inverted upto the internal os.
iii. Where uterus, cervix and vagina are completely inverted
Symptoms of uterine Inversion
- Symptoms of uterine inversion are not always well defined
- If however the inversion occurs quickly or is of severe degree there is feelling of something soming down and pain followed by collapse and hemorrhage of variable severity
- When the inversion is of lesser degree and is contained within the vagina or when the fundus does not come beyond the os externum, only pain and hemorrhage may be present
- Inversion is also the most important cause of unexplained shock
  - In these cause the shock is not primarily due to loss of blood or trauma but is really of neurogenic origin.
  - In this connection it has been suggested by several authors that as one or both invagination, pressure on them may be responsible for shock.
  - The traction on the infundibulopelvic ligaments, peritoneum and broad ligaments stimulate the " parasympathetic system" producing shock.

97. Female with normal pubic and axiillary hair, with primary amenorrhea. Diagnosis:
a. Androgen insensitvity syndrome

Reference: Shows Text book of Gynaecology 14th Edition page 252
Explanation; The laboratory evaluation of a woman with primary amenorrhea depends upon the findings on physical examination, in particular, whether mullerian structures are present or absent

Thus, the single most important step in the evaluation is to determine by physical examination or ultrasonography whether there are any anatomic abnormalities of the vagina, cervix, or uterus

If a normal vagina or uterus is not abviously present on physical examination, pelvic ultrasonography should be performed to confirm the presence or absence of ovaries, uterus, and cervix, in addition, ultrasonography can be useful to look for vaginal or cervical outlet obstruction in patients with cyclic pain
Uterus absent

For those with absence of the uterus, further evaluation should include a karyotype and measurement of serum testosterone.

These tests should then allow the clinician to distinguish between:-

o Abnormal mulerian development (mullerian agenesis) (46, XX, karyotype with normal female serum testosterone concentrations).)Meyer Rokitansky Kuster Hauser syndrome)

o Andtrogen insensitivity syndrome (46, XY karyotype and normal male serum testosterone concentrations)

Uterus present

For patients with normal mullerian structures and no evidence of an imperforate hymen, vagina septum, or congenital absence of the vagina, an endocrine evaluation should be performed

This includes measurement of serum beta human chorionic gonadotropin to axclude pregnancy and of serum FSH, and perphas other hormones

A high serum FSH concentration is indicative of primary ovarian failure. A karyotype is then required and may demonstrate complete or partial deletion of the X chromosome (Turner syndrome) or the presence of Y chromatin. The presence of a Y chromosome (eg, vanishing tests syndrome, absent testis determining factor) is associated with a higher risk of gonadal tumors and makes gonadectomy mandatory

A low or normal serum FSH concentration suggests functional hypothalamic amenorrhea, congenital GnRH deficiency, or other disorders of the hypothalamic-pituitary axis.

o Cranial MR imaging is indicated in most cases of hypogonadotropic hypogonadism to evaluate for hypothalamic or pituitary disease, cranial imaging should be recommended in all women with primary hypogonadotropic hypoganadism. Cranial imanging should be recommended in all women with primary hypogonadotropic hypogonadism, visual field defects, headaches, or any other signs of hypothalmaci –pituitary dysfunction

Serum prolactin and thyrotropin should be measured is FSH is low or normal, especially if galactorrhea is present.

If there are sings or symptoms of hyperandrogenism, serum testosterone and dehydroepiandrosterone sulfate (DHEA-S) should be measured to assess for an androgen –secreting tumor.

Among women who are also hypertensive, blood tests should be drawn for evaluation for CYP17 deficiency.

o The characteristic findings are elevations in serum progester- on (>3 ng/mL [9.5 nmol/L]) and deoxycorticosterone and low values for serum 17-alpha-hydroxyprogesterone (<0.2 ng/ml [0.6 nmol/L]

98. Most accurate and safest way to diagnose viable pregnancy at 6 weeks:

a. Beta HCG levels

b. pv examination to check uterus size of 6 weeks

c. Trans vaginal scan for fetal cardiac activity

d. Doppler for fetal cardiac activity

Answer: (b) Trans vaginal scan for fetal cardiac activity
Reference: D.C Dutta Text book of Obstetrics 7th Edition page 64-68
Explanation: An intrauterine GS should be seen by TVS when the maternal serum β hCH level is 1000-1200 mIU /ml. and by TAS with the level of β hCH 6000 mIU/ml. Yolk sac is seen at the level of 7000 mIU/ml

and the embryo at 11000 mIU/ml. definite diagnosis of intrauterine pregnancy is possible as early as 29-35 days of menstrual age. True Gestational Sac (GS) is eccentric in position within the endometrium of fundus or body of the uterus. Double deciduas sign of the gestational sac is due to the interface between the deciduas and the chorion which appears as two distinct layers of the wall of the gestation sac. Presence of yolk sac or fetal pole within the gestation sac confirms pregnancy. True gestational sac size increase 1mm/day. Pseudogestational sac or pseudosac is irregular in outline, usually centrally located in the uterus, has no double deciduas sign and the sac remains empty. The rate of early (< 12 weeks) pregnancy loss (miscarriage) diminishes steeply with the progressive appearance of fetal structures (e.g. with only Gs=11.5% and with embryo >10 mm=0-5%).

Fetal anatomy and viability

Fetal features on Transvaginal Sonography (TVS) for dating in pregnancy		Gestational age and embryonic structures identified by Trasvaginal Sonography (TVS)	
Mean sac diameter (MSD)	Findings	Menstrual age (weeks)	Fetal structures
5-8 12mm 15-18mm	Yolk sac Embryo Cardiac activity	4 5 6 7	Choriodecidual thickness, chorionic sac Gestation sac, embyo yolk sac Fetal pole, cardiac activity Lower limb buds, midgut herniation (Physiological)
Embryo CRL ≥ 4mm	Cardiac activity	8 9	Upper limb buds, stomach Spine. Choroid plexus
GS should increase by 1.1 mm in diameter per day			

99. ormone replacement in post menopausal woman is done for all except:

a. Prevent genito-urinary atrophy

b. Cardiovascular protection

c. Prevention against osteoporosis

d. Imprevent of vasomatar symptoms

Answer: (b) Cardiovascular protection

Reference: D.C Dutta Text book of Obstetrics 7th Edition page 60-61

Explanation: Indication of Hormone Replacement Therapy

i. Relief of menopausal symptoms

ii. Prevention of osteoporosis

iii. To maintain the quality of life in menopausal years

Special group of women to whom HRT should be prescribed

- Premature ovarian failure
- Gonadal dysgenesis
- Surgical or radiation menopause

BENEFITS OF HORMONE REPLACEMENT THERAPY (HRT)
• Improvement of vasomotor symptoms • (70-80%) • Improvement urogenital atrophy • Increased in bone mineral density (2-5%) • Reduction in colorectal cancer (20%) • Possibly cardio protection

RISKS OF HORMONE REPLACEMENT THERPAY

- Endometrial cancer: When oestrogen is given alone to a woman with intact uterus, it cause endometrial proliferation, hyperplasia and carcinoma. It is therefore advised that a progestogen should be added to ERT to counter balance such risks
- Breast cancer: Combined oestrogen and progestin replacement therapy increased the risks breast cancer slightly (R.R. 1.26). adverse effects of hormone therapy are related to the dose and duration of therapy
- Venous Thromboembolic (VTE) disease has been found to be increased with the use of combined oral oestrogen and progestin. Transdermal oestrogen use does not have the some risk compared to oral oestrogen
- Coronary Heart Disease (CHD) : Combined HRT therapy shows a relative hazard (R.R 1.29) of CHD. Hypertension has not been observed to be a complication of HRT
- Lipid metabolism: An increased incidence of gallbladder disease has been observed following ERT due to rise in cholesterol (in bile)
- Dementia, Alzheimer: disease are increased

100. A female from hilly region, of poor socioeconomic status, coming with amenorrhea, weight loss, low grade fever. no pain abdomen. diagnosis:

a. Pelvic inflammatory disease
b. Urogenital tuberculosis
c. Bacterial cystitis
d. Bacterial vaginitis

Answer: (b) Urogenital tuberculosis

Reference: D.C Dutta Text book of Obstetrics 7th Edition page 132-135

Explanation: the incidence of genital tuberculosis varies widely with the social status of the patient and her environment. The incidence is about 1 % amongst the gynaecological patients attending the out-patient department in the developing counties. Incidence is high (5-10%) amongst the patients with infertility. With the prevalence of HIV infection incidence of gential tuberculosis is rising. About 10% of women with pelvic tuberculosis, have urinary tract tuberculosis.

101. Maternal blood, fetal blood difference test?

a. APT test
b. Kleihouer-Betka Test
c. Bubblin Test
d. Osmotic of Fragility test

Answer: (a) ATP Test

Reference: Williams Obs 23th Edition 617-618:

Explanation: Both Apt test and Kleihaou-betke test can be used to presence of fetal blood within a sample

~ APT Test

o Is used to detect the pressure or absence of fetal blood (qualitative) in a vaginal discharge to rule out vasa previa late in pregnancy or to detect the origin of a neonatal blood vomiting whether it's a genuine upper GI hemorrhage/hemoptysis or simply a swallowed maternal blood during delivery or from cracked nipple.

~ Kleihauer_Betke Test

o The sample is maternal peripheral smear and is used to see how much of fetal blood (quantitative) has been transfused into the maternal serum in order to assess the risk of isoimmunization and then the risk of hemolytic disease of the newborn.

102. Breathing movements in a fetus lead to all except

a. Increase towards end of term
b. Can lead to RDS
c. Develops the Respiratory Muslces
d. Prevents lung hypoplasia

Answer: (a) Can lead to RDS

Reference: Dutta, 5thEdn, page 469

Explanation: Fetal breathing movements start at 11 weeks of gestation
The breathing movements are regular in the early weeks, as the gestational age advances, it becomes irregular and rapid.
Fetal breathing increase with hyperglycemia and an increase in fetal oxygen tension.
Breathing movements also help in the development of the THORAX(respiratory muscles).
The etiology of RDS is deficiency of SURFACTANT but not fetal breathing movements, hence the answer of exclusion.

103. Female present with single elevated painless ulcer with 3cm on labia majora with everted margins
a. Chlamydia
b. Herpes
c. Papilloma virus
d. Syphilis
Answer: (d) Syphilis.
Reference: Dutta, 5thedn, page; 153
Explanation:
TABLE 90-1 CLINICAL FEATURES OF GENITAL ULCERS

FEATURE	SYPHILIS	HERPES	CHANCROID	LYMPHOGRANULOMAVENEREUM	DONOVANOSIS
INCUBATION PERIOD	9–90 DAYS	2–7 DAYS	1–14 DAYS	3 DAYS–6 WEEKS	1–4 WEEKS (UP TO 6 MONTHS)
EARLY PRIMARY 1LESIONS	PAPULE	VESICLE	PUSTULE PAPULE,	PUSTULE, OR VESICLE	PAPULE
NO. OF LESIONS	USUALLY ONE	MULTIPLE	USUALLY MULTIPLE, MAY COALESCE	USUALLY ONE; OFTEN NOT DETECTED, DESPITE LYMPHADENOPATHY	VARIABLE
DIAMETER	5-15 MM	1-2 MM	VARIABLE	2-10 MM	VARIABLE
EDGES	SHARPLY DEMARCATED, ELEVATED, ROUND, OR OVAL	ERYTHEMATOUS	UNDERMINED, RAGGED, IRREGULAR	ELEVATED, ROUND, OR OVAL	ELEVATED, IRREGULAR
DEPTH	SUPERFICIAL OR DEEP	SUPERFICIAL	EXCAVATED	SUPERFICIAL OR DEEP	ELEVATED
BASE	SMOOTH, NONPURULENT, RELATIVELY NONVASCULAR	SEROUS, ERYTHEMATOUS, NONVASCULAR	PURULENT, BLEEDS EASILY	VARIABLE, NONVASCULAR	RED AND VELVETY, BLEEDS READILY
INDURATION	FIRM	NONE	SOFT	OCCASIONALLY FIRM	FIRM
PAIN	UNCOMMON	FREQUENTLY TENDER	USUALLY VERY TENDER	VARIABLE	UNCOMMON
LYMPHADENOPATHY	FIRM, NONTENDER, BILATERAL	FIRM, TENDER, OFTEN BILATERAL WITH INITIAL EPISODE	TENDER, MAY SUPPURATE, LOCULATED, USUALLY UNILATERAL	TENDER, MAY SUPPURATE, LOCULATED, USUALLY UNILATERAL	NONE; PSEUDOBUBOES

104. Which is not included in 3rd stage of labor to prevent PPH?
a. Oxytocin injection with shoulder injury

b. Early cutting with cord clamp
c. Prophylactic Misoprostol
d. Controlled and sustained cord traction
Answer: (b) Early cutting with cord clamp
Reference: Williams Obstetrics, 22 edn, table 302-5, practical obstretrics problems, 5thEditionb , page-748
Explanation:
Active management of the third stage of labor is highly effective at preventing postapartum hemorrhage (PPH). In a systematic review of randomized controlled trials, active management of the third of labor was more effective than physiological management in preventing blood loss.
Active management of the third stage of labor (AMTSL) includes 3 steps
I. Administrate of a uterotonic drug (oxytocin, 10 IU injection, is the drug of choice)
II. Controlled cord traction
III. Uterine massage after delivery of placenta, followed by palpation of the uterus every 15 minutes for 2 hours to assess the continued need for massage.
Oxytocin (10 IU), administered intramuscularly, is the preferred medication and route for the prevention of PPH is low-risk vaginal deliveries. Care providers should administer this medication after delivery of the anterior shoulder. Intravenous infusion of oxytocin (20-40 IU in 1000mL, 150 mL/h) is an acceptable alternative for AMTSL.

Ergometrine (Methergine) can be used for prevention of PPH but may be considered second choice to oxytocin owing to the greater risk of maternal adverse effects and of the need for manual removal of a retained placenta. Ergometrine 0.2 mg IM and misoprostol 600-800 mg given by the oral, sublingual, or rectal route may be offered as alternatives in vaginal deliveries when oxytocin in not available.

Timing of cord clamping (early or late) is controversial at present. There are no clear guidelines available at present. But as mentioned in earlier MCQ, cord clampling is a part of second stage of labor.

The Active Management of third stage of labour includes:
1. Controlled traction of cord.
2. Injection IV oxytocin(preferable over methergin) immediately after the delivery of the anterior shoulder.
3. And delayed clamping of the cord.
Note: Early cord clamping is employed in Infant of a diabetic mother, Rh negative pregnancy, and asphyxia neonatorum.
According to various clinical trials advocated for prophylactic use of misoprostol in the active management of third stage of labor, it was found that, prophylactic misoprostol is not superior to administration of IV oxytocin or methergin (ueterotonic). Hence the anwer of exclusion
105. Duncan method of separation of placenta, all are true except:
a. Commonest mode of separation of placenta
b. Maternal surface of placenta presents at vulva
c. Peripheral separation of placenta occurs
d. Blood accumulates between placenta and membranes and escapes through vagina.
Answer: a. Commonest mode of separation of placenta
Reference: WHO reference physiology of labour for midwifery page 25.
Methods of separation of placenta are:
i. CENTRAL SEPARATION(SCHULTZ)
Detachment from uterus starts at the centre.
The Schultze method is said to be the more common.
Accumulation of blood behind the placenta results in retroplacentalhemotoma.
Factors that help in further sepaprationare, weight of the placenta and retroplacental hematoma.
The placenta detaches from a central point and slips down into the vagina through the hole in the amniotic sac; the fetal surface appears at the vulva, with the membranes trailing behind like an inverted umbrella as they are peeled off the uterine wall. The maternal surface of the placenta is not seen, and any blood clot is inside the inverted sac.
ii. MARGINAL SEPARATION(DUNCAN'S METHOD):

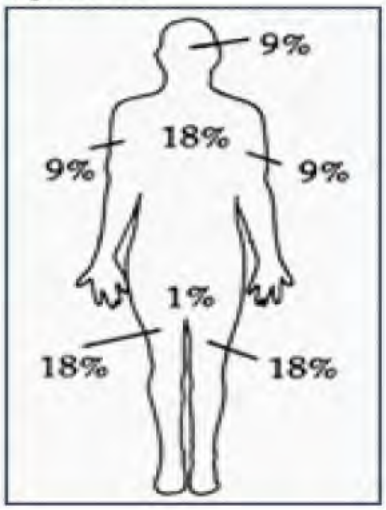
Separation starts at the periphery.
In this method, the placenta slides down sideways and comes through the vulva with the lateral border first, like a button through a buttonhole. The maternal surface is seen, and the blood escapes as it is not inside the sac. It is more likely that parts of the membranes will be left behind with the Matthews Duncan method, as they may not be peeled off as completely as in the
Schultze method.The Matthews Duncan method may be associated with a placenta lying lower in the uterus. The process of separation takes longer and blood loss is greater (because there are fewer oblique fibres in the lower segment).

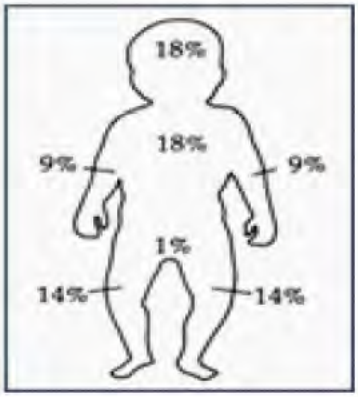
SURGERY

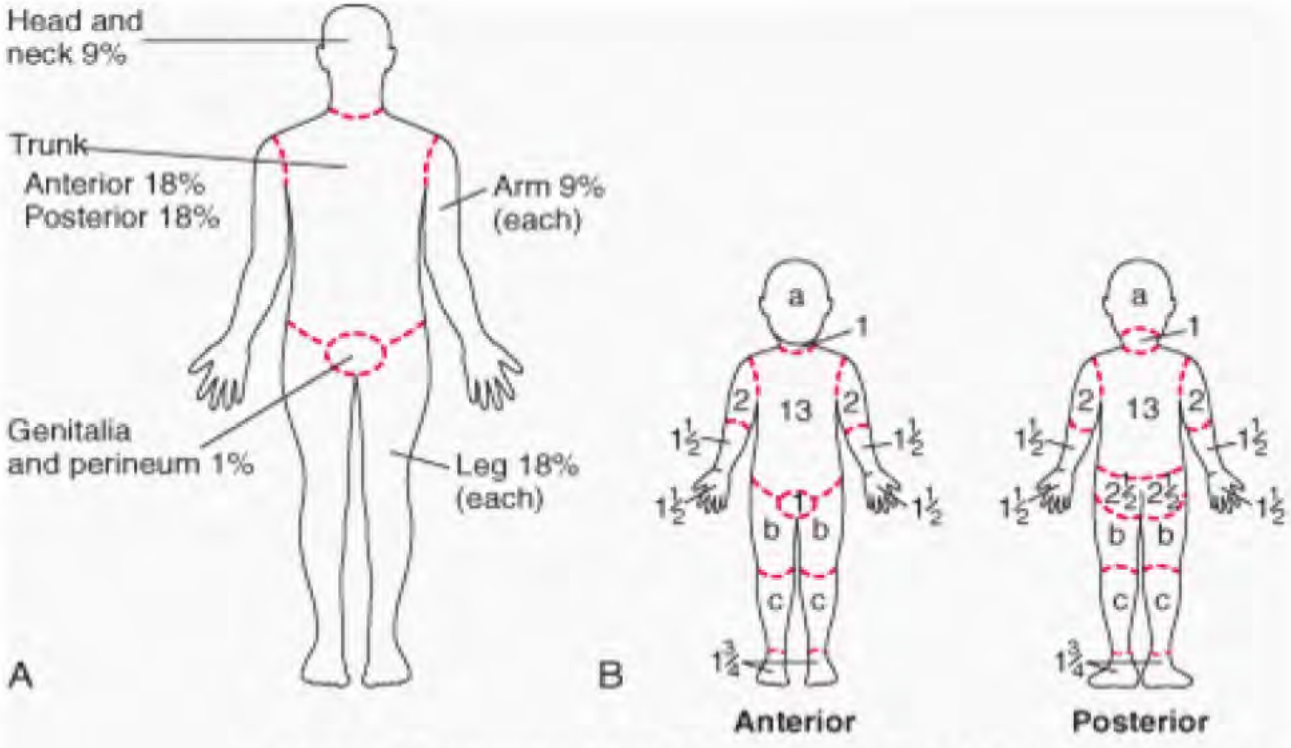
106. A guy driving a car fast suddenly slams on the brakes. He was wearing a seat belt. The most likely organ affected is :
a. Liver
b. Spleen
c. Mesentery
d. Kidney
Answer: (c) Mesentery
Reference: Bailey & Love 25th Edition page 1003
Explanation:
107. A child is having few drops of blood with act of defecation. The probable diagnosis is
a. Juvenile rectal polyp
b. Adenomatous Polyposis
c. Rectal ulcer
d. Sx
Answer: (a) Juvenile rectal polyp
Reference: Bailey & Love 25th Edition page 83
Explanation: The most common cause of bleeding per rectum in children is juvenile rectal polyp up to adolescence age. Though in infants and young children (up to 1 yrs) the cause is anal fissure.
108. Damage control surgery include
a. Used in triage
b. Surgery avoided to controlled major damage
c. Minor disability rectified first then posted for surgery
d. Controlled major hemorrhage than disability
Ans: D, Controlled major hemorrhage than disability
Ref: (TRAUMA Emergency Resuscitation, Perioperative, Anesthesia and Surgical Management Volume 1, chapter 21, page 405)
Explanation:
STAGES OF DAMAGE CONTROL
Stage I: Limited Operation (Control of Hemorrhage and Contamination)
In patients with high-grade spleen injuries - grades III, IV, and V, splenectomy is the procedure of choice for damage control.
Stage II: Resuscitation (Restoration of Physiologic Homeostasis)
Stage III: RE-OPERATION: REMOVAL OF PACKS,WASHOUT, DEFINITIVE REPAIR

109. A child is having circumferential burns over both his thighs , buttocks , face and scalp . Calculate the surface area of the burnt area.
a. 27%
b. 10%
c. 37%
d. 45%
Answer: (a) 27%
Reference: CSDT 11th Edition page 269

Explanation:







Relative percentage of body surface area (% BSA) affected by growth

	Age				
Body Part	**0 yr**	**1 yr**	**5 yr**	**10 yr**	**15 yr**
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2
b = 1/2 of 1 thigh	2 3/4	3 1/4	4	4 1/4	4 1/2
c = 1/2 of 1 lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4

110. Earliest complication of ileostomy is :

a. Obstruction

b. Necrosis

c. Diarrhea

d. Prolapse

Answer: (b) Necrosis

Reference: Schwartz 9th Edition page 1031

Explanation:

Schwartz 9e page 1981

Complications of Ileostomy
Stoma necrosis may occur in the early postoperative period and usually is caused by skeletonizing the distal small bowel and/or creating an overly tight fascial defect.

111. A motor cyclist after multiple trauma is having hypoventilation. The cause is
ss. damage to respiratory centre
tt. damage to respiratory apparatus
uu. both
vv. None of the Above
Ans: (a) damage to respiratory centre
Ref: CSDT 13th Ed. Pg. 817
Explanation: The Cushings triad is the constellation of bradycardia, hypertension, and respiratory irregularity that often occupies a herniation event clinically. It is likely due to brainstem compression. The hypertension can be conceptualized as an attempt to protect the brain's perfusion pressure from the high intracranial pressure. Intubation and mechanical ventilation often obscure the respiratory part of the triad, but the other two are observed regularly.
i. HTN
ii.Bradycardia
iii. Bradypnoea

112. A smoker 30 packets year present with, microscopic hematuria and painless left scrotal mass, LDH negative AFP negative, DD?
a. Epididymitides
b. Seminoma
c. RCC
d. Lung Cancer
Ans: C, RCC
Ref: Bailey and Love 25th page 1311
Exp:
Clinical features
Haematuria is usually the presenting symptom, sometimes with clot colic. There may be a dragging discomfort in the loin or the patient may detect a mass. In men, a
rapidly developing varicocele is a rare but impressive sign, occurring most often on the left side because the left gonadal vein is obstructed where it joins the left renal vein.
113. A new born boy is having lumbosacral meningomyelocele n awaiting the surgical repair. The sac is best protected with sterile guaze piece soaked with
a. Mercurochrome
b. Tincture benzoin
c. Methylene blue
d. Normal saline
Answer: D, Normal saline
Reference:
Explanation:
The first step in the management of a newborn with myelomeningocele is a careful clinical assessment with particular emphasis on motor, sensory, reflex, and sphincter function. Open defects should be covered with a saline-moistened nonadherent dressing to prevent injury to and desiccation of the neural placode. Neurotoxic substances are avoided, and the child should be kept prone or in a lateral recumbent position until surgery
114. Mortality in emergency abdominal aorta aneurysm repair surgery
ww. 10%
xx. 20%
yy. 40%
zz. >50%

Ans: B, 20%
Reference: Harrison 17th Edition page 1565
Sabiston 17 edition page 1976/77
Exp:
Results after open repair of ruptured aneurysm vary. For patients in stable condition with a contained rupture, the mortality rate is less than 50%. For patients with free intraperitoneal rupture who arrive in shock with possible cardiac arrest, the outlook is grim and mortality rates exceed 90%.

ORTHOPEDIC

115. Unconscious man lying in right lateral position with injury to face, hand lateral aspect of right knee. Most common cause for this clinical presentation?

a. Trigeminal n.
b. Radial n.
c. Common Peroneal nerve
d. Femoral n

Answer: (c) Common Peroneal nerve
Ref: Apleys Orthopaedics
Exp: the common peroneal nerve is around fibular neck which can be injured in fall on lateral aspect of knee.

116. A child was given gallows traction with weight. He is suffering from

a. Fracture of shaft of femur
b. Fracture of neck humerus
c. Spine injury
d. Fracture ulna

Answer (a) Fracture of shaft of femur
Ref:ApleysOrthopaedics, J Maheswariorthopaedics
Exp: in child less than one year femur shaft is treated by gallows traction

117. Most common cause of death in pelvic #

e. Hypovolumic shock
f. Bladder Injury
g. Neurogenic Injury
h. Pelvic instability

Answer (a) Hypovolumic shock:
Ref:ApleysOrthopaedics, J Maheswariorthopaedics
Exp: blood loss on average is 2 litresie 40% of blood volume

118. A patient with hip dislocation with limitation of Abduction at hip and flexion and internal rotation deformity at hip and shortening. Diagnosis is

i. Central dislocation
j. Anterior dislocation
k. Posterior dislocation
l. Fracture dislocation

Ans: C, Posterior dislocation
Ref: ApleysOrthopaedics, J Maheswariorthopaedics
Exp: Typical attitude is Flexion adduction Internal rotation and shortening in Posterior hip dislocation

119. A lady with colle's fracture. The fracture healed but after few days patient develops pain and swelling over wrist and forearm, red hot and shiny skin and on X Ray diffuse osteopenia. Diagnosis is?

m. Sudeck'sosteodystrophy
n. Causalgia
o. Non union
p. Nerve injury

Ans: A, Sudeck'sosteodystrophy

Ref: ApleysOrthopaedics, J Maheswariorthopaedics
Exp: it is same as reflex sympathetic dystrophy, the cause is unknown

120. True about supracondylar fracture
q. Cubitus valgus more common than varus
r. Nerve injuries are usually tranisitory
s. Anterior displacement of distal segment
t. Weakness in elbow flexion eventually
Ans: B, Nerve injuries are usually tranisitory
Ref: ApleysOrthopaedics, J Maheswariorthopaedics
Exp: Cubitusvarus is more common, posterior displacement of fragment, Nerve injury is usually neuroproxia
121. Patient presents with knee problem. He gives history of injury during playing hockey 3 months back. On testing knee was unstable in extension but was stable in 90 degrees of flexion probably injury involves
u. ACL anteromedial fiber
v. ACL posterolateral fiber
w. PCL
x. Anterior portion of medial meniscus
Ans: B, ACL posterolateral fiber
Ref: Campbell orthopaedics
Exp: Anterior cruciate ligament with postero lateral corner in jury iepopliteus are common
122. 70year female is on treatment with Alendronate for severe osteoporosis. Now she complains of pain in right thigh. What is the next investigation to be performed?
a. DEXA scan
b. X- ray
c. Serum vitamin D levels
d. Serum alkaline phosphate levels|
Answer (b) (X-ray)
Reference: CMDT 2013/page 1118
Explanation:
In this question patient is complaining of pain in right hip and thigh. Thus diagnosis of the patient can be
1. Fracture of neck of femur or shaft of femur.
2. Chronic pain probably not bony in origin; instead, it is related to abnormal strain on muscles, ligaments, and tendons and to secondary facet-joint arthritis associated with alterations in thoracic and/or abdominal shape.
3. Lumbar spinal canal stenosis resulting in nerve compression
4. Tendinits
CMDT states that patients of osteoporosis on bisphosphonates can develop “chalk” like fractures of shaft of femur unlike the spiral fractures that are read by us in orthopedic textbooks. The clinical feature of these patients is thigh pain and X ray reveals a shocking fracture. Infact Harrison also states in osteoporosis chapter in volume II that improvement in bone density scores with bisphosphonates over ten years of intake are minimal.

If the question asked regarding MONITORING the patient in future then the best answer should have been DEXA
123. Osteoblasticsecondaries are seen in
y. Prostate metastasis
z. Lung metastasis
aa. Bladder metastasis
bb. Stomach metastasis
Ans: A, Prostate metastasis
Ref: ApleysOrthopaedics, J Maheswariorthopaedics
Exp: most common cause of osteblasticsecondaries in males is prostrate , in females breast carcinoma

PSYCHIATRY

124. Anti craving agent in alcoholism is :

a. Buprenorphine

b. Disulfiram

c. Acamprosate

d. Diazepam

Answer: (c) Acamprosate

Reference: Keplan & Sadock's –Synopsis of Psychiatry 9 Edition page 1286-1287

Expalnation: Data support the probable modest effect of two medications in addition to the usual cognitive-behavioral approaches for treating alcohol dependence. These have been hypothesized to decrease the rewarding effects of alcohol if an individual returns to drinking, diminish the symptoms of the protracted withdrawal syndrome, or, perhaps, decrease craving. The first drug is acamprosate, which is an analog of the amino acid neurotransmitter taurine and structurally resembles GABA. Although the mechanism of action in alcoholics is unknown, acamprosate antagonizes neuronal overactivity related to the excitatory neurotransmitter glutamate, at least in part by acting as an antagonist to NMDA receptors. Thus, one possibly important mechanism for this drug may be in diminishing mild anxiety, mood swings, and other sleep difficulties associated with the subacute and protracted withdrawal syndrome observed after the first 4 to 5 days of alcohol abstinence.

At the usual dose of about 2,000 mg per day the majority of studies report modest but significantly better outcomes with active drug than placebo. The level of improvement is often in the range of 15 to 20 percent over results seen with placebo, and in most studies, rates of side effects are similar for active drug and placebo except for GI problems such as diarrhea. At least one cost-effectiveness study indicated that the improved result produces significant cost savings above the financial obligations of prescribing the drug. Although there are no clear guidelines, it is reasonable to prescribe this drug for about 6 months, during which time it is hoped an alcohol-free lifestyle can be developed.

The second promising medication is the long-acting, oral, opioid antagonist naltrexone. This agent has been marketed for many years for the treatment of acute opioid overdose. It may also be effective for highly motivated opioid-dependent individuals, who understand that because of the use of this blocking drug, they cannot get high from opioids. Naltrexone works by blocking opioid receptors in the brain and, thus, at least indirectly, changing levels of activity of dopamine and serotonin. In alcohol-dependent individuals, naltrexone and its cousin nalmefene (Revex) have been hypothesized to decrease the rewarding effects of a drink and to diminish craving. The large majority of double-blind, placebo-controlled trials support the superiority of naltrexone to placebo regarding drinking-related behaviors with about 15 to 20 percent better outcomes than for placebo. The side effect profile of the 50 to 150 mg per day usually used in these trials is relatively benign. The most frequent complaints involving GI upset, with a possible modest increase in lethargy and, perhaps, the subjective report of a dampened level of interest in activities and life events. Naltrexone is also available in a 380 mg injection to be given once a month as Vivitrol. This might be particularly useful for patients who find it difficult to comply with oral medications.

Several additional medications are worth brief mention. First, while not yet approved for the treatment of alcoholism, the anticonvulsant topiramate (Topamax) has the usual GABA-boosting activity associated with treatments of seizure disorders along with an additional glutamate receptor blockade and effects on dopamine systems. Perhaps related to this combination of effects, several studies using about 300 mg of topiramate per day reported improvements in drinking patterns. Second, some preliminary data are available on the serotonin 3 receptor antagonist ondansetron (Zofran), indicating a possible benefit for this medication, particularly in early onset alcoholics with comorbid drug dependence and criminality. However, these studies are very preliminary and there are no indications for the use of this expensive medication with a high level of associated side effects in clinical practice. Additional medications that have been evaluated for the treatment of alcoholism include the nonbenzodiazepine antianxiety drug buspirone (BuSpar), several selective serotonin reuptake inhibitors (SSRIs), the GABA-B receptor agonist baclofen (Lioresal), and antipsychotic medications in the treatment of alcoholism, although none of these medications have proven to be consistently better than placebo in controlled trials

125. On Wechsler intelligence scale if a child has average IQ the score of child shall be

a. 71

b. 90
c. 111
d. 40
Answer: (b) 90
Ref. Review of PSM including Biostatistics by Vivek Jain, 5th Ed., Pg 646
EXPLANATION
Wechsler Adult Intelligence Scale (WAIS):
i. David Wechsler (1939) published the first intelligence test designed for an adult population; It was the 'first IQ test based on Normal/Gaussian distribution'
ii. Levels of Intelligence based on IQ levels

Levels of Intelligence	***IQ range***
Idiot	0 – 24
Imbecile	25 – 49
Moron	50 – 69
Borderline	70 – 79
Low normal	80 – 89
Normal	90 – 109
Superior	110 – 119
Very superior	120 – 139
Near Genius	140 and over

126. Recent mental health act in India is designated as:
a. Mental health act
b. Mental health care act
c. Mantal health care and rehabilitaion act
d. Mental health treatment and rehabilitation act
Answer: (b) The Mental Health Care Act
Ref. Ministry of Health and Family Welfare, Government of India, 2013]
EXPLANATION
Recognizing that:

Persons with mental illness constitute a vulnerable section, and are subject to discrimination; Families bear disproportionate financial, physical, mental, emotional and social burden of providing treatment and care; Persons with mental illness should be treated like other persons with health problems; The Mental Health Act, 1987 has not been able to adequately protect the rights of persons with mental illness and promote access to mental health care in the country

And in order to:
Protect, promote and fulfill the rights of persons with mental illness during the delivery of health care in institutions and in the community; Ensure health care, treatment and rehabilitation to persons with mental illness is provided in the least restrictive environment possible, and in a manner that does not intrudes on their rights and dignity. Community-based solutions in the vicinity of the person's usual place of residence, are preferred to institutional solutions; Provide treatment, care and rehabilitation to improve the capacity of the person to develop his or her full potential and to facilitate his or her integration into community life; Fulfill obligations under the Constitution of India and obligations under various International Conventions ratified by India; Regulate the public and private mental health sectors within a rights framework to achieve the greatest public health good; Improve accessibility to mental health care by mandating sufficient provision of quality public mental health services and non-discrimination in health insurance; Establish a mental health care system integrated into all levels of general health care; Promote principles of equity, efficiency and active participation of all stakeholders in decision making;
This Act may be called the Mental Health Care Act, 2011.
127. Not a feature of rett syndrome:

a. Macrocephaly
b. Seizures
c. repetitive stereotyped movements
d. Dystonia
Answer: (a) Macrocephaly
Reference: Nelson : chapter 29.4 rett syndrome
Explanation: The DSM-IV-TR diagnostic criteria for the condition are presented in Table 41-6. Early development of the child is normal. The onset of the condition may be insidious and follow a period of developmental stagnation and delay recognition slightly. Over time, the developmental delay, decelerated head and body growth, and diminished interest in the environment become quite striking. Previously acquired abilities are lost, including purposeful hand movements. The lack of social interest and potential for misdiagnosis of autism is greatest in the preschool years, as, usually, by the time the child reaches school age, the autistic-like features are less prominent and development plateaus for a time. At this point, severe mental retardation, seizures, and motor problems are areas of major concern. During this plateau, or "pseudo-stationary" phase, breathing difficulties, bruxism, motor problems, and early scoliosis may be noted. Apneic episodes may alternate with hyperventilation. Most children remain ambulatory until a final period of motor deterioration. EEG is frequently abnormal and seizures are common

128. Alcoholic brought by his wife with emergency, he is alcoholic for past 15 years. 2 days he left drinking because of some religious case, had c/o rest;essmess, tremor insomnia, on 2nd day he started throwing convulsions, after 6 hrs he had 2nd episode, now the treatment to control seizure is
a. Sodium valproate
b. Diazepam
c. Phenyton
d. Clonidine
Answer: (b) Diazepam
Reference: Keplan & Sadock's –Synopsis of Psychiatry 9 Edition page 1285
Explanation: For the less than 1 percent of alcoholic patients with extreme autonomic dysfunction, agitation, and confusion—that is, those with alcoholic withdrawal delirium, also called delirium tremens—there is no perfect treatment. The first key step is to ask why such a severe and relatively uncommon withdrawal syndrome has occurred; the answer often relates to a concomitant medical problem that needs immediate treatment. The withdrawal symptoms can then be minimized either through the use of benzodiazepines (in which case high doses are sometimes required) or through antipsychotic agents such as haloperidol (Haldol). Once again, doses are used on the first or second day to control behavior, and the patient can be weaned off the medication by approximately the fifth day.

Another 1 percent or so of patients may have a single grand mal convulsion. The rare person has multiple fits, and the peak incidence is on the second day of withdrawal. Such patients require a neurological evaluation, but in the absence of evidence of an independent seizure disorder, those with a single seizure do not benefit from anticonvulsant drugs.

129. Piagnet cognitive model question , if object out of sight out of mind and "here and now" are included in which stage
a. Concrete operation stage
b. Pre operational stage
c. Formal operational stage
d. Sensory and motor stage
Answer: (d) Sensory and motor stage
Reference: Kaplan & sadock's –Synopsis of Psychiatry 9 Edition page 136-139
Explanation:

Stage	Age	Achievements of stage
1. Sensorimotor stage	Birth to 2 years	• Infants being to learn through sensory observation & gain control of their motor functions. • Development of object performance i.e. ability to understand that objects have an existence • Symbolization (ability to create visual image of object)
2. Preoperational thought stage	2 to 7 years	• Intuitive (primitive) thinking i.e. unable to think logically & child learn without use of reasoning Ex-if children drop a glass that then breaks –they believe that the glass was ready to break, not that they broke the glass. • Immanent justice i.e. the belief that punishment for bad deeds is inevitable • Egocentric i.e. unable to modify their behavior for someone else. • Magical thinking (or phenomenalistic causality), in which the events that occur together are thought to cause one another eg. Thunder causes lightening • Semiotic function
3. Stage of concrete operations	7 to 11 years	• Operational thought i.e. can now see things from someone else perspective • Syllogistic (logical) reasoning • Conservation i.e. if a clay ball is rolled into sausage shape the child recognizes that both form contain equal amount of clay • Reversibility i.e. to realize that one thing can turn into another & back again as ice & water
4. Stage of formal thoughts	11 though end of adolescence	• Ability to think abstractly, to reason deductively& to define concepts, & emergency of skills for dealing with permutations & combination.

130. In Mental Status examination , which of the following is a measure of awareness response
a. Perception
b. Judgement
c. Insight
d. Cognition
Answer: (a) Perception
Reference: Kaplan & sadock's –Synopsis of Psychiatry 9 Edition page 619
Explanation
The terms sensation, perception, and cognition are used to describe the three broadening tiers of human information processing: Think of sensation as the immediate result of the stimulation of sensory neurons and perception as involving the organization and conscious awareness of these sensations. Cognition refers to the set of interwoven processes, such as memory, language, and problem solving, that we bring to bear to generate structures and strategies to apply to our perceptions. Although distinguishing among sensation, perception, and cognition has a long academic history, our ability to separate them grows increasingly difficult as more is learned about their interdependence in the functioning nervous system.

Cognition

As part of the MSE, the interviewer should get an overall sense of the patient's cognitive functioning. The elements of cognitive functioning that should be assessed are alertness, orientation, concentration

memory (both short and long term), calculation, fund of knowledge, abstract reasoning, insight, and judgment.

Note should be made of the patient's level of alertness. The amount of detail in assessing cognitive function will depend on the purpose of the examination and also what has already been learned in the interview about the patient's level of functioning, performance at work, handling daily chores, balancing one's checkbook, etc. In addition the psychiatrist will have already elicited data concerning the patient's memory for both remote and recent past. A general sense of intellectual level and how much schooling the patient has had can help distinguish intelligence and educational issues versus cognitive impairment that might be seen in delirium or dementia. The MMSE is a standardized screening tool commonly used to screen for cognitive impairment, and it can be used to follow the patient over time monitoring for progression or resolution of cognitive problems. The MMSE employs a 30-point scale using standardized questions and tasks and can be done in a matter of a few minutes

131. Study of brain and behavior in a normal and diseased brain called as
a. Neuropsychology
b. Neuro developmental psychiatry
c. Neuropsychiatry
d. Criminal psychology
Answer: (a) Neuropsychology
Reference: Kaplan & Sadock's –Synopsis of Psychiatry 9 Edition page 936
Clinical neuropsychology is a specialty in psychology that examines the relationship between behavior and brain functioning in the realms of cognitive, motor, sensory, and emotional functioning. The clinical neuropsychologist integrates the medical and psychosocial history with the reported complaints and the pattern of performance on neuropsychological procedures in order to determine whether results are consistent with a particular area of brain damage or a particular diagnosis. Although neurological syndromes are often the focus of referrals, the neuropsychological examination has a valuable place in diagnosing and identifying behavioral symptoms that can be associated with various medical, psychological, and psychiatric conditions.

Clinical neuropsychology is primarily differentiated from general clinical psychology by its focus on thorough and extensive evaluation of a broad range of cognitive and emotional factors and their potential relationship to brain damage. There is considerable overlap between the two areas in the approach to assessment, chiefly characterized by reliance on the psychometric foundations of reliability, validity, and normative standards in order to objectively define behavioral symptoms and complaints. Emotional factors are the province of both. Both evaluate cognition, although the clinical psychologist generally focuses on issues involving general intellectual, academic, and vocational skills rather than neurological factors. Both clinical psychologists and clinical neuropsychologists are involved in treatment, which can include psychotherapy as well as cognitive retraining to remediate deficits. Psychoeducational functions are also served by both fields in discussing symptoms, assessment results, and their implications with patients, caregivers, and other health professionals.

INTERNAL MEDICINE

132. LBBB is seen with all except:
a. Acute MI
b. Ashmann syndrome
c. Hypokalemia
d. Hyperkalemia
Answer: B : Ashman syndrome:
Reference: current diagnosis and management in cardiology, chapter19 : supraventricular tachycardia
Explanation:
- Normally the septum is activated from left to right, producing small Q waves in the lateral leads.
- In LBBB, the normal direction of septal depolarisation is reversed (becomes right to left), as the impulse spreads first to the RV via the right bundle branch and then to the LV via the septum.
  - This sequence of activation extends the QRS duration to > 120 ms and eliminates the normal septal Q waves in the lateral leads.
  - The overall direction of depolarisation (from right to left) produces tall R waves in the lateral leads

(I, V5-6) and deep S waves in the right precordial leads (V1-3), and usually leads to left axis deviation.

- As the ventricles are activated sequentially (right, then left) rather than simultaneously, this produces a broad or notched ('M'-shaped) R wave in the lateral leads.

Causes of LBBB are:

- Aortic stenosis
- Ischaemic heart disease
- Hypertension
- Dilated cardiomyopathy
- Anterior MI
- Primary degenerative disease (fibrosis) of the conducting system (Lenegre disease)
- Hyperkalaemia
- Digoxin toxicity

Ashman phenomenon is seen in atrial fibrillation. U all know atrial fibrillation has irregularly irregular pulse leading to irregular RR interval in ECG. This means there is very fast conduction occurring via bundle of his which is receiving these impulses from a supraventricular phenomenon. Now the point is that the two fascicles of bundle of his have different refractory periods. Thus if an impulse lands on the bundle of his and finds the right bundle refractory then RBBB will occur. Also remember that the refractory period of right fascicle is more than that of the left fascicle resulting in RBBB.

133. A 35 year old man with complaints of ptosis, with difficulty in chewing and occasionally swallowing. There is no history of diplopia and on examination there is a symmetrical ptosis, lateral arm abduction time of 60 seconds. Repetitive nerve stimulation test shows decremental response. EMG shows myopathic response. Anti –Ach receptor antibodies are negative. Probable diagnosis is:

a. Ocular M.Gravis
b. Generalised M.Gravis
c. Since Anti-ach receptor antibodies are negative consider other diagnosis
d. Chronic Progressive external opthalmoplegia

Answer: (d) Chronic Progressive external opthalmoplegia
Reference: Harrison 18th edition chapter 386
http://emedicine.medscape.com/article/1215103-overview
This question looks intially as in favour of myaesthenia gravis but the following points are against the diagnosis of Myasthenia gravis

1. Gender given as MALE at 35 years. While MG is seen in men in 50-60 years of age.
2. Symetrical Ptosis without Diplopia. In MG we have asymetrical ptosis.
3. No diurnal variation in severity of weakness mentioned
4. For ocular M.G. symptoms must persist for 3 years
5. Anti- ach receptor antibodies are absent in 50% cases of ocular myaesthenia gravis but they would be absent in CPEO as well as.
6. In CPEO- Ciliary and iris muscles are not involved and hence diplopia is absent.

I have also compiled harrison and Emedicine data on these two close answers in a tabular fashion-

MCQ choice	clinical features	Investigations
Ocular M.Gravis	It affects individuals in all age groups, but peaks of incidence occur in women in their twenties and thirties and in men in their fifties and sixties. Overall, women are affected more frequently than men, in a ratio of 3:2. The cardinal features are weakness and fatigability of muscles. The weakness increases during repeated use (fatigue) or late in the day, and may improve following rest or sleep	anti-AChR antibodies are detectable in the serum of 85% of all myasthenic patients but in only about 50% of patients with weakness confined to the ocular muscles. The presence of anti-AChR antibodies is virtually diagnostic of MG, but a negative test does not exclude the disease
C.P.E.O	CPEO tends to begin in young adulthood. Ptosis usually is the first clinical sign, and ophthalmoplegia may not become apparent for months to years. The ptosis is usually bilateral and symmetrical. As the ptosis progresses, the patient may use the frontalis muscle to elevate the eyelids, adopt a chin-up head position, and eventually resort to manual elevation of the eyelids, as ptosis often becomes complete. Unilateral or asymmetric ptosis may develop. Because of the symmetric nature of this disorder, patients often do not complain of diplopia. They may be unaware of their decreased motility until it becomes severe. In many cases, downward gaze is preserved to a greater extent than up-gaze or horizontal movement. The course of CPEO is characterized by constant progression without periods of remission or exacerbation. Patients also may complain of dryness of the eyes due to exposure keratopathy.	A positive acetylcholine receptor antibody test may establish the diagnosis of myasthenia gravis. A negative acetylcholine receptor antibody assay does not differentiate chronic progressive external ophthalmoplegia (CPEO) from myasthenia gravis. In contrast to myasthenia gravis, patients with CPEO usually report little to no variability in their ptosis. A positive acetylcholine receptor antibody test may establish the diagnosis of myasthenia gravis. A negative acetylcholine receptor antibody assay does not differentiate chronic progressive external ophthalmoplegia (CPEO) from myasthenia gravis

	CPEO	MG	Graves'	OPD
Ophthalmoplegia	+	+	+	+
Pupillary involvement	-	+ often not clinically significant	-	-
Ptosis	+	+	+	+
Intermittent regression of symptoms	-	+	-	
Facial weakness	+	+	-	+
Limb weakness	+ mild	+	+ mild	+ mild
Forced duction test	+	+ with chronic ocular form	-	+ in advanced cases
Dry eyes	+	+	+	+
Congested conjunctiva	-	-	+	-
Lid retraction	-	+	+	-
Proptosis	-	-	+	-
Dysphagia	-	+	-	+

D

134. 18 yr old boy is asymptomatic. On ECG he has a short PR interval with delta waves. Which of the following is not routinely required for these patients?

a. Holter monitoring
b. Treadmill test
c. Reassurance
d. Beta blockers

Answer (b) : Treadmill test

Reference : Chapter 233 harrison 18th edition

o The clinical diagnosis of the patient is WOLF Parkinson SYNDROME. These patients have a bypass

tract that allows conduction of impulses from atria to ventricles without having to be subjected to the decremental property of AV node.

o Generally, no activity restrictions are recommended in patients with ECG findings of pre-excitation in the absence of tachycardia. They should be restricted from high-risk professions (eg, airline pilot) and may be restricted from competitive sports.

o Patients presenting with tachycardias and accessory pathways should avoid participating in competitive sports, because catecholamines can decrease the refractoriness of the bypass tract and facilitate tachyarrhythmias. Patients with hypertrophic cardiomyopathy, or the Ebstein anomaly should also abstain from competitive sports. Walking on Treadmill can precipitate due to sympathetic stimulation an arryhtmia and would not be recommended for patient of W.P.W.

o The Holter monitor records electrical signals from the heart via a series of electrodes attached to the chest. Electrodes are placed over bones to minimize artifacts from muscular activity. The number and position of electrodes varies by model, but most Holter monitors employ between three and eight. The device is responsible for keeping a log of the heart's electrical activity throughout the recording period.More modern units record onto digital flash memory devices. The data are uploaded into a computer which then automatically analyzes the input, counting ECG complexes, calculating summary statistics such as average heart rate, minimum and maximum heart rate, and finding candidate areas in the recording worthy of further study by the technician. Thus Holter monitoring in these patients can identify if patient is having a life threatening event which on recording will help us know that these patients would or would not require a RADIOFREQUENCY ABLATION to get rid of the accessory pathway.

135. 8 yr old boy is having muscle weakness. On examination he has large muscles in legs and his CPK levels are reducing. He also has a sub normal IQ. Probable diagnosis is :

a. Hereditary sensory and motor neuropathy
b. Myelin deficiency
c. Dystrophin deficiency
d. Congenital myopathy

Answer (c) : dystrophin deficiency

Reference: chapter 387 harrison 18th edition

o Duchenne's dystrophy is present at birth, but the disorder usually becomes apparent between ages 3 and 5 years. The boys fall frequently and have difficulty keeping up when playing. Running, jumping, and hopping are invariably abnormal.

o GOWER sign is seen with PSEUDOHYPERTROPHY of the calf muscles.

o Contractures of the heel cords and iliotibial bands become apparent by age 6 years, when toe walking is associated with a lordotic posture

o By age 12 years, most patients are wheelchair dependent. Contractures become fixed, and a progressive scoliosis often develops that may be associated with pain. The chest deformity with scoliosis impairs pulmonary function, which is already diminished by muscle weakness. By age 16–18 years, patients are predisposed to serious, sometimes fatal pulmonary infections. Other causes of death include aspiration of food and acute gastric dilation.

o A cardiac cause of death is uncommon despite the presence of a cardiomyopathy in almost all patients

o Intellectual impairment in Duchenne's dystrophy is common; the average intelligence quotient (IQ) is 1 SD below the mean. Impairment of intellectual function appears to be nonprogressive and affects verbal ability more than performance.

o Serum CK levels are invariably elevated to between 20 and 100 times normal. The levels are abnormal at birth but decline late in the disease because of inactivity and loss of muscle mass. EMG demonstrates features typical of myopathy. The muscle biopsy shows muscle fibers of varying size as well as small groups of necrotic and regenerating fibers. Connective tissue and fat replace lost muscle fibers. A definitive diagnosis of Duchenne's dystrophy can be established on the basis of dystrophin deficiency in a biopsy of muscle tissue or mutation analysis on peripheral blood leukocytes, as discussed below.

o A diagnosis of Duchenne's dystrophy can also be made by Western blot analysis of muscle biopsy

specimens, revealing abnormalities on the quantity and molecular weight of dystrophin protein. In addition, immunocytochemical staining of muscle with dystrophin antibodies can be used to demonstrate absence or deficiency of dystrophin localizing to the sarcolemmal membrane. Carriers of the disease may demonstrate a mosaic pattern, but dystrophin analysis of muscle biopsy specimens for carrier detection is not reliable.

136. 3 yr old child is having barking cough with drooling of saliva. His RR is 36/min and Xray neck lateral view shows "thumb sign". The probable diagnosis is:

a. Epiglottis
b. Croup
c. Foreign body
d. Abductor vocal cord palsy.

Answer (a) : Epiglottis
Reference: chapter 382.1 nelson textbook

EPIGLOTTITIS: A otherwise healthy child suddenly develops a sore throat and fever. Within a matter of hours, the patient appears toxic, swallowing is difficult, and breathing is labored. Drooling is usually present and the neck is hyperextended in an attempt to maintain the airway. The child may assume the tripod position, sitting upright and leaning forward with the chin up and mouth open while bracing on the arms. A brief period of air hunger with restlessness may be followed by rapidly increasing cyanosis and coma. Stridor is a late finding and suggests near-complete airway obstruction. Complete obstruction of the airway and death can ensue unless adequate treatment is provided. The barking cough typical of croup is rare. Usually, no other family members are ill with acute respiratory symptoms.The diagnosis requires visualization of a large, "cherry red" swollen epiglottis by laryngoscopy. Occasionally, the other supraglottic structures, especially the aryepiglottic folds, are more involved than the epiglottis itself.. Anxiety-provoking interventions such as phlebotomy, intravenous line placement, placing the child supine, or direct inspection of the oral cavity should be avoided until the airway is secure. If epiglottitis is thought to be possible but not certain in a patient with acute upper airway obstruction, the patient can undergo lateral radiographs of the upper airway first. Classic radiographs of a child who has epiglottitis show the "thumb sign".

CROUP : Croup is a clinical diagnosis and does not require a radiograph of the neck. Radiographs of the neck may show the typical subglottic narrowing or "steeple sign" of croup on the postero-anterior view

137. 3 year old child is having sore throat with high grade fever. On examination he has a inflamed phyranx and exudate on tonsils with tender lymphadenopathy. Which of the following is a non suppurative complication of these patients?

a. Acute rheumatic fever
b. Acute glomerulonephritis
c. Acute rheumatic fever and acute Glomerulonephritis both
d. Scarlet fever

Answer is C: Acute rheumatic fever and acute Glomerulonephritis both
Reference: CMDT 2013 ,page no 1419

Group A β – hemolytic streptococci (Streptococcus pyogenes) are the most common bacterial cause of pharyngitis. Transmission occurs by droplets of infected secretions. Group A streptococci producing erythrogenic toxin may cause scarlet fever in susceptible persons.

Clinical Findings

A. Symptoms and Sings

"Strep throat" is characterized by a sudden onset of fever, sore throat, pain on swallowing, tender cervical adenopathy, malaise, and nausea. The pharynx, soft palate, and tonsils are red and edematous. There may be a purulent exudate. The centor clinical criteria for the diagnosis of streptococcal pharyngitis are temperature > 38oC, tender anterior cervical adenopathy, lack of a cough, and pharyngotosillar exudates.

The rash of scarlet fever is diffusely erythematous, resembling a sunburn, with superimposed fine red papules, and is most intense in the groin and axillas. It blanches on pressure, may become petechial, and fades in

2-5 days, leaving a fine desquamation. The face is flushed, with circumoral pallor, and the tongue is coated with enlarged red papillae (strawberry tongue).

B. Laboratory Findings

Leukocytosis with neutrophil predominance is common. Throat culture onto a single blood agar plate has sensitivity of 80-90%. Rapid diagnostic tests based on detection of streptococcal antigen are slightly less sensitive than culture. Clinical criteria such as the centor criteria, are useful for identifying patients in whom a rapid antigen test or throat culture is indicated. Patients who meet two or more of these criteria merit further testing. When three of the four are present, laboratory sensitivity of rapid antigen testing exceeds 90%. When only one criterion is present, streptococcal pharyngitis is unlikely. In high prevalence settings or if clinical suspicion for streptococcal pharyngitis or if clinical suspicion for streptococcal paryngitis is high, a negative antigen test or culture should be confirmed by a follow up culture.

Complications

Suppurative complications include sinusitis, otitis media, mastoiditis, peritonsillar abscess and suppuration of cervical lymph nodes.

Nonsuppurative complications are rheumatic fever and glomerulonephritis. Rheumatic fever may follow recurrent epidoses of pharyngitis beginning 1-4 weeks after the onset of symptoms. Glomerulonephritis follows a single infections with a nephriotogenic strain of streptococcus group A (eg, types 4, 12, 2, 49 and 60), more commonly on the skin than in the throat, and begins 1 – 3 weeks after the onset of the infection.

138. 28 year old lady with history of recurrent abortions and repeated episodes of pain the calves is most likely to have deficiency of which of the following

a. Plasmin
b. Thrombin
c. Protein C
d. Factor 13

Answer is C: protein C

Reference: table 58.3 Harrison 18th Edition and NELSON chapter 478

 Factor 13 deficiency and thrombin deficiency causes bleeding manifestations. Congenital plasminogen deficiency has been mentioned in texts but not congenital plasmin deficiency. Hence by exclusion the diagnosis is protein C deficiency.

 Thrombohilia should be suspected in patients has a history of recurrent venous thromboembolism, venous thrombosis in a person younger than 40 years, a familial history of venous thromboembolism, and thrombosis in unusual sites (eg, mesenteric vein, renal vein, hepatic and cerebral thrombosis).

 Homozygous deficiency of protein C presents with purpura fulminans in the first few hr of life. Fresh frozen plasma (FFP) is the only immediately available source of protein C. Amelioration of symptoms usually requires 10–15 mL/kg of FFP every 8–12 hr. Clinical trials are in progress using a plasma protein C concentrate, which eliminates the need for large amounts of FFP. A recombinant activated protein C concentrate (drotrecogin-α) has been approved for the treatment of adult sepsis, but it has not been approved for treating hereditary deficiency

 Thrombophilic disorders are usually associated with venous thrombosis. However, protein S, protein C, ATIII deficiencies, and lupus anticoagulants have been associated with arterial thrombosis.

 Patients with protein C and S deficiencies can develop warfarin-induced skin necrosis when placed on warfarin since protein C and S are vitamin K–dependent factors and, hence are suppressed.

 Remember: Purpura fulminans in infancy could suggest protein C deficiency.

 These antibodies occur in about 20% of patients with systemic lupus erythematosus (SLE), but they are also associated with other autoimmune diseases. Lupus anticoagulants may occur in patients taking phenothiazines, phenytoin, phenytoin, hydralazine, quinine, amoxicillin, and oral contraceptives.

 Also REMEMBER : Clinical criteria for indicating the presence of lupus anticoagulants (Sapporo criteria for the antiphospholipid syndrome) are as follows:

- One or more arterial, venous, or small vessel thrombosis, affecting any organ or tissue
- Pregnancy morbidity: The risk for maternal and fetal morbidity increases after the 10th week of pregnancy. Fetal mortality in pregnancy can include spontaneous abortions, prematurity, and stillbirths.
- Three or more unexplained consecutive spontaneous abortions after the 10th week of gestation

139. A lady is pregnant and is a known case of juvenile myoclonic epilepsy and is receiving sodium valproate. Which of the following drugs is best suited after valproate for management of this patient

a. phenytoin
b. carbamazepine
c. lamotrigine
d. Lacosamide

Answer is C: lamotrigine

Reference: Harrison 18th edition table 368-9 and 369-9

In the latest issue of journal neurology in month of may 2013 he has mentioned valproate as most teratogenic followed by phenobarbitone being responsible for neural tube defects. Hence the older concept of phenobarbitone as the safest anti-epileptic drug can be called as outdated. The current safest A.E.D in pregnancy is LAMOTRIGINE>>CARBAMAZEPINE.

Generalized-onset Tonic-Clonic	Focal	Typical Absence	Atypical Absence, Myoclonic, Atonic
First-Line			
Valproic acid Lamotrigine Topiramate	Lamotrigine Carbamazepine Oxcarbazepine Phenytoin Levetiracetam	Valproic acid Ethosuximide	Valproic acid Lamotrigine Topiramate
Alternatives			
Zonisamidea Phenytoin Carbamazepine Oxcarbazepine Phenobarbital Primidone Felbamate	Topiramate Zonisamidea Valproic acid Tiagabinea Gabapentina Lacosamidea Phenobarbital Primidone Felbamate	Lamotrigine Clonazepam	Clonazepam Felbamate

140. 60 year old patient with renal failure. He also has bone pain with X ray limb showing lytic lesions in the long bones. Serum electrophoresis shows M spike. Peripheral smear shows 35 % plasma cells. Bone marrow shows presence of immature plasma cells. Diagnosis is

a. Plasma cell Leukemia
b. Multiple myeloma
c. Smoldering myeloma
d. Monoclonal Gammopathy of unknown significance.

Answer: A: Plasma cell leukemia

Reference: http://www.medscape.com/viewarticle/731900

Explanation:

The question mentions Peripheral smear showing plasma cells >35% and not in the bone marrow. Hence the diagnosis goes in favour of plasma cell leukemia.

The diagnostic criteria for Plasma Cell Leukemia include the

- Presence of a circulating clonal plasma cell count of more than 2000/µl (if the total white blood cell count is >10,000/µl) OR
- The presence of more than 20% CIRCULATING plasma cells.

Since in this question one of the criteria is satisfied hence diagnosis is Plasma cell leukemia

- PCL can be secondary PCL (s PCL) if arising from a known a diagnosis of plasma cell myeloma or primary PCL (p PCL) if no prior history of plasma cell myeloma can be ascertained. sPCL was felt to arise late in the course of plasma cell myeloma and those patients have been described to have a worse prognosis than those with p PCL. However, a recent report indicates that the median time to transformation to s PCL from plasma cell myeloma is approximately 21 months. The primary form accounts for 60% of all cases of PCL.
- Patients with PCL may present with signs and symptoms commonly found in patients with plasma cell myeloma, such as bone pain, anemia, renal dysfunction, Hypercalcemia and lytic bone lesions; or clinical manifestations normally found in patients with leukemia, including leukocytosis, anemia, thrombocytopenia, infections and hepato-splenomegaly. In addition, these patients may also have elevated levels of LDH and β-2-microglobulin. Patients with PCL are also more likely to present with advanced stage disease (stage III) and have more significant extramedullary involvement that can include the CNS
- In contrast to most patients with plasma cell myeloma, the malignant cells in PCL frequently lack CD56, CD9, CD117 and human leukocyte antigen DR expression. It has been proposed that weak or absent CD56 expression could explain the propensity of these clonal plasma cells to leukemic transformation and also account for the lower osteolytic potential and higher rates of extra-medullary involvement seen in patients with PCL
- The use of traditional combination chemotherapy, such as vincristine, Adriamycin, dexamethasone (VAD) or high-dose cyclophosphamide-Etoposide is associated with response rates of up to 59% and median overall survival of 15–20 months. More aggressive regimens such as fractionated high-dose cyclophosphamide and dexamethasone with infusional vincristine and Adriamycin (hyper CVAD) have been used alone or in combination with thalidomide and have revealed encouraging results including complete response (CR)

141. A patient has Pc02 of 30 mmHg, P02 of 105 mmHg and pH of 7.45. diagnosis is compensated
a. respiratory acidosis
b. respiratory alkalosis
c. metabolic acidosis
d. metabolic alkalosis

Answer: (b) respiratory alkalosis
- Well if you look at values it indicates hyperventilation of the patient due to C02 washout with increased 02 and normal pH due to the process of compensation.
- If in same question pH>7.45 we shall call it uncompensated respiratory alkalosis

Else follow this table:
- If direction of change of pH and pC02 is both in same direction ie like both reduced or both increased then problem is metabolic
- If direction of change of pH and PC02 is opposite, then the primary problem is respiratory.
- Else use a pen and mark arrows for increase or decrease in the table below and u shall see a pattern emerge which will solve all MCQ in books.

pH	pC02	HCO3-	Interpretation
Decrease	Decrease	Decrease	Metabolic acidosis
Increase	Increase	Increase	Metabolic alkalosis
Decrease	Increased	Increased	Respiratory acidosis
Increase	Decrease	Decrease	Respiratory alkalosis

142. Bilateral Balbinski sign is seen in :
a. brain- stem stroke
b. thalamus and basal ganglia damage
c. cerebellum damage
d. mid pontine lesions

Answer: (a) brain- stem stroke

Reference: Harrison 18th edition figure 370-10 point no M

Brain stem stroke	Can result in development of " locked in syndrome" where both the corticospinal pathways would be affected leading to bilateral balbinski sign. Harrison in figure 370-10 quotes "Basilar artery syndrome (the syndrome of the lone vertebral artery is equivalent): A combination of the various brainstem syndromes plus those arising in the posterior cerebral artery distribution. Bilateral long tract signs (sensory and motor; cerebellar and peripheral cranial nerve abnormalities): Bilateral long tract; cerebellar and peripheral cranial nerves Paralysis or weakness of all extremities, plus all bulabar musculature.
Thalamus and basal ganglia	Results in contralateral spasticity,,hemi-anaesthesia due to involvement of internal capsule. Basal ganglia involvement would cause tremors, abulia (apathy with loss of initiative) with dystonia.
Cerebellum stroke	It would cause intentional tremors with ataxia, dysmetria, dys-aidokinesia and development of Nystagmus and signs of raised ICT.
Midpontine lesions	Usually results in development of ipsilateral cranial nerve palsies with contralateral motor manifestations due to involvement of corticospinal pathway eg millard gubler syndrome.

143. A 60 year old patient with 60 Packet per year history of smoking is having a cancer which shows small cells with high mitotic index. Which of the following is correct for this patient

a. aggressive pyscho-social behaviour
b. repeated blood transfusions
c. thin limbs with centripetal obesity
d. increased thirst/ version 2 of this choice was gynaecomastia

Answer: (a) aggressive pyscho-social behaviour

Reference: Harrison chapter 100.

Aggressive psycho-social behaviour	Limbic encephalitis with oat cell carcinoma
Repeated BT	Required for haematological malignancy.
Thin limbs with centripetal obesity	Not seen with ECTOPIC ACTH production
Increased thirst	Not seen with SIADH due to extra water in body.
Gynaecomastia	Seen with large cell carcinoma

Answer is A due to limbic encephalitis causing aggressive behaviour due to involvement of limbic system. The closest choice increased thirst due to SIADH, is negated as Harrison writes in the para-neoplastic syndrome (chapter 100) that most patient of ectopic ACTH secretion are asymptomatic. Read on the next text for a comprehensive logic for the question.

The clinical diagnosis of small cell cancer/oat cell cancer of lung which has many paraneoplastic manifestations:

1. Cushing syndrome is due to ECTOPIC ACTH release by lung cancer. However these patients due to this aggressive cancer CANNOT HAVE presentation of centripetal obesity but weight loss and hence choice number C is ruled out.
2. SIADH due to increase secretion of ADH leading to hyponatremia , Most patients with ectopic vasopressin secretion are asymptomatic and are identified because of the presence of hyponatremia on routine chemistry testing. Symptoms may include weakness, lethargy, nausea, confusion, depressed mental status, and seizures. The severity of symptoms reflects the rapidity of onset as well as the extent of hyponatremia. Hyponatremia usually develops slowly but may be exacerbated by the administration of IV fluids or the institution of new medications.
3. Limbic encephalitis (anti –HU antibodies) due to SCLC can present with agitation and psycho-social

behaviour though the following 4 criteria must be satisfied.

- Subacute onset (<12 weeks) of seizures, short-term memory loss, confusion, and psychiatric symptoms
- Neuropathologic or radiologic evidence (MRI, SPECT, PET) of involvement of the limbic system
- Exclusion of other possible aetiologies of limbic dysfunction
- Demonstration of a cancer within 5 years of the diagnosis of neurologic symptoms, or the development of classic symptoms of limbic dysfunction in association with a well-characterized paraneoplastic antibody (Hu, Ma2, CV2, amphiphysin, Ri)

4. Paraneoplastic syndromes are common in patients with lung cancer, especially those with SCLC, and may be the presenting finding or the first sign of recurrence. Ectopic production of parathyroid hormone (PTH), or more commonly, PTH-related peptide, is the most common life-threatening metabolic complication of malignancy, primarily occurring with squamous cell carcinomas of the lung. Clinical symptoms include nausea, vomiting, abdominal pain, constipation, polyuria, thirst, and altered mental status.

- Hyponatremia may be caused by the syndrome of inappropriate secretion of antidiuretic hormone (SIADH) or possibly atrial natriuretic peptide (ANP). SIADH resolves within 1–4 weeks of initiating chemotherapy in the vast majority of cases. During this period, serum sodium can usually be managed and maintained above 128 meq/L via fluid restriction. Demeclocycline can be a useful adjunctive measure when fluid restriction alone is insufficient. Of note, patients with ectopic ANP may have worsening hyponatremia if sodium intake is not concomitantly increased. Accordingly, if hyponatremia fails to improve or worsens after 3–4 days of adequate fluid restriction, plasma levels of ANP should be measured to determine the causative syndrome.
- Ectopic secretion of ACTH by SCLC and pulmonary carcinoids usually results in additional electrolyte disturbances, especially hypokalemia, rather than the changes in body habitus that occur in Cushing's syndrome from a pituitary adenoma. Treatment with standard medications, such as metyrapone and ketoconazole, is largely ineffective due to extremely high cortisol levels. The most effective strategy for management of Cushing's syndrome is effective treatment of the underlying SCLC. Bilateral adrenalectomy may be considered in extreme cases.
- Skeletal–connective tissue syndromes include clubbing in 30% of cases (usually NSCLCs) and hypertrophic primary osteoarthropathy in 1–10% of cases (usually adenocarcinomas). Patients may develop periostitis, causing pain, tenderness, and swelling over the affected bones and a positive bone scan. Neurologic–myopathic syndromes are seen in only 1% of patients but are dramatic and include the myasthenic Eaton-Lambert syndrome and retinal blindness with SCLC, while peripheral neuropathies, subacute cerebellar degeneration, cortical degeneration, and polymyositis are seen with all lung cancer types. Many of these are caused by autoimmune responses such as the development of anti–voltage-gated calcium channel antibodies in Eaton-Lambert syndrome. Patients with this disorder present with proximal muscle weakness, usually in the lower extremities, occasional autonomic dysfunction, and rarely with cranial nerve symptoms or involvement of the bulbar or respiratory muscles. Depressed deep tendon reflexes are frequently present. In contrast to patients with myasthenia gravis, strength improves with serial effort. Some patients who respond to chemotherapy will have resolution of the neurologic abnormalities. Thus, chemotherapy is the initial treatment of choice. Paraneoplastic encephalomyelitis and sensory neuropathies, cerebellar degeneration, limbic encephalitis, and brainstem encephalitis occur in SCLC in association with a variety of antineuronal antibodies such as anti-Hu, anti-CRMP5, and ANNA-3. Paraneoplastic cerebellar degeneration may be associated with anti-Hu, anti-Yo, or P/Q calcium channel autoantibodies. Coagulation, thrombotic, or other hematologic manifestations occur in 1–8% of patients and include migratory venous thrombophlebitis (Trousseau's syndrome), nonbacterial thrombotic (marantic) endocarditis with arterial emboli, and disseminated intravascular coagulation with hemorrhage, anemia, granulocytosis, and leukoerythroblastosis. Thrombotic disease complicating cancer is usually a poor prognostic sign. Cutaneous manifestations such as dermatomyositis and acanthosis nigricans are uncommon (1%), as are the renal manifestations of nephrotic syndrome and glomerulonephritis

GYNAECOMASTIA is seen with large cell carcinoma of lung.

144. In HIV infection all are affected except:
a. Anterior Cingulate cortex
b. Caudate nucleus
c. Globus pallidus
d. cerebral white matter
Answer is C .globus pallidus
Reference: Harrison text book chapter 189/Peripheral blood HIV DNA is associated with atrophy of cerebellar and subcortical gray matter

Kalpana J. Kallianpur, neurology may 2013.

- HIV causes subcortical dementia and therefore you can see that basal ganglia involvement is there. Cerebral white matter involvement is mentioned in Harrison. Hence by exclusion the answer is A.
- AIDS related dementia causes psychomotor slowing, apathy, bradykinesia and altered posture and gait similar to those observed in advanced Parkinson's disease. The dementia has the hallmarks attributed to subcortical dementia. The exquisite sensitivity of many of these patients to dopamine receptor blockade suggested a profound and, perhaps, selective abnormality of striatal dopaminergic systems.
- In contrast to "cortical" dementia (such as Alzheimer's disease), aphasia, apraxia, and agnosia are uncommon, leading some investigators to classify HIV encephalopathy as a "subcortical dementia" characterized by defects in short-term memory and executive function. In addition to dementia, patients with HIV encephalopathy may also have motor and behavioral abnormalities. Among the motor problems are unsteady gait, poor balance, tremor, and difficulty with rapid alternating movements. Increased tone and deep tendon reflexes may be found in patients with spinal cord involvement. Late stages may be complicated by bowel and/or bladder incontinence. Behavioral problems include apathy, irritability, and lack of initiative, with progression to a vegetative state in some instances. Some patients develop a state of agitation or mild mania. These changes usually occur without significant changes in level of alertness. This is in contrast to the finding of somnolence in patients with dementia due to toxic/metabolic encephalopathies.
- HIV-associated dementia is the initial AIDS-defining illness in 3% of patients with HIV infection and thus only rarely precedes clinical evidence of immunodeficiency. Clinically significant encephalopathy eventually develops in 25% of untreated patients with AIDS

145. A patient has developed confusion and keeps bumping into objects. He can speak fluently and on examination patient has inability to differentiate between fingers, cannot write. On MRI T2 images show cortical and sub cortical lesions.
a. Gerstman syndrome
b. Anton syndrome
c. Millard Gubler syndrome
d. Locked in syndrome
Answer: (b) Anton syndrome
Basically since he can speak fluently so gerstman is ruled out. Since cranial nerve palsy is ruled out millard gubler is ruled out. Locked in syndrome has quadriplegia with inability to speak. Hence by exclusion the diagnosis is Anton syndrome.

GERSTAMNN syndrome	Gerstmann syndrome is characterized by four primary symptoms: 1. Dysgraphia/agraphia: deficiency in the ability to write. 2. Dyscalculia/acalculia: difficulty in learning or comprehending mathematics. 3. Finger agnosia: inability to distinguish the fingers on the hand. 4. Left-right disorientation.
Anton syndrome	• Anton–Babinski syndrome is a rare symptom of brain damage occurring in the occipital lobe. • Those who suffer from it are "cortically blind", but affirm, often quite adamantly and in the face of clear evidence of their blindness, that they are capable of seeing. • Failing to accept being blind gets dismissed by the sufferer through confabulation
Millard gubler syndrome	Symptoms result from the functional loss of several anatomical structures of the pons, including the sixth and seventh cranial nerves and fibers of the cortico-spinal tract. 1. Paralysis of the abducens (CN VI) leads to diplopia, internal strabismus. 2. Disruption of the facial nerves (CN VII) leads to symptoms including flaccid paralysis of the muscles of facial expression and loss of the corneal reflex. 3. Disruption of the cortico-spinal tract leads to contralateral hemiplegia of the extremities
Locked in syndrome	• Locked-in syndrome usually results in quadriplegia and the inability to speak in otherwise cognitively intact individuals. • The site of lesion is bilateral ventral pons / brainstem leading to bilateral cortico-spinal pathway leading to quadriplegia. • The damage to cortico-bulbar fibers causes facial paralysis • The midbrain area of superior colliculus is preserved and hence vertical gaze is preserved • Clinical features of locked in syndrome 1. Sustained eyes opening and preserved vertical eye movement 2. Preserved higher cortical functions 3. Aphonia or severe hypophonia 4. Quadriplegia or quadriparesis 5. Primary mode of communication that uses vertical eye movements or blinking • Individuals with the syndrome lack coordination between breathing and voice. This restricts them from producing voluntary sounds, though the vocal cords are not paralysed

146. Which can differentiate between seizures and syncope

a. Unconsciousness

b. Injury due to fall

c. Urinary incontinence

d. Tongue bite

Answer (d) Tongue bite

Reference : Harrrison 18th edition table 399-7.

Harrison mentions clearly that urinary incontinence which is the first thing that comes to mind is present with both of these conditions. Injury due to fall can occur in both . Unconsciousness will occur in both though the transition to unconsciousness varies and so does the recovery.

Table 369-7 Features that Distinguish Generalized Tonic-Clonic Seizure from Syncope		
Features	**Seizure**	**Syncope**
Immediate precipitating factors	Usually none	Emotional stress, Valsalva, orthostatic hypotension, cardiac etiologies
Premonitory symptoms	None or aura (e.g., odd odor)	Tiredness, nausea, diaphoresis, tunneling of vision
Posture at onset	Variable	Usually erect
Transition to unconsciousness	Often immediate	Gradual over seconds
Duration of unconsciousness	Minutes	Seconds
Duration of tonic or clonic movements	30–60 s	Never more than 15 s
Facial appearance during event	Cyanosis, frothing at mouth	Pallor
Disorientation and sleepiness after event	Many minutes to hours	<5 min
Aching of muscles after event	Often	Sometimes
Biting of tongue	Sometimes	Rarely
Incontinence	Sometimes	Sometimes
Headache	Sometimes	Rarely

147. All are true about iron deficiency anaemia?
a. increased RDW > 14.5%
b. decreased serum ferritin
c. decreased Total iron binding capacity(< 480ng/dl)
d. decreased serum iron(less than 15ng/dl)
Answer: (c) decreased Total iron binding capacity(< 480ng/dl)
Reference: chapter 103 Harrison 18th edition
Red cell distribution width is a measure of dimorphic cell population in patients in early stages of IRON deficiency anemia as only a part of total cell population would be microcytic hypochromic and the rest of the cells normal. Thus it is a good screening test for evaluation of patients of iron deficiency Anemia.
In Iron deficiency obviously iron and ferritin would be lesser and this would send the Total iron binding systems to work harder to get iron into the system. Thus TIBC is always increased in iron deficiency Anemia.
Remember TIBC value is always inverse of serum ferritin value.
The following table is a must know for initial MCQ of haematology

	IDA Deficiency state	Sideroblastic anemia Can be remembered for MCQ sake as iron richness state	Anemia of chronic disease
Serum iron	Less	Increase	Less
Serum ferritin	Less	Increase	Increased
TIBC	Increased	decrease	Decreased

COPY table 103-4 from Harrison here in the text.

124. most common genetic defect in M.O.D.Y
a. Glucokinase
b. Hepatocyte nuclear factor 1 alpha
c. Hepatocyte nuclear factor 4 alpha

d. Insulin promoter 1

Answer: (b) Hepatocyte nuclear factor 1 alpha

Reference : CMDT page no 1194

Maturity onset dibetes of the young (MODY)

- This subgroup is a relatively rare monogenic disorder characterized by non – insulin dependent diabetes with autosomal dominant inheritance and an age at onset of 25 yrs or younger.
- Patients are nonobese, and their hyperglycemia is due to impaired glucose induced secretion of insulin. Six types of mody have been described. Except for MODY 2 , in which a glucokinase gene is defective, all other types involve mutations of a nuclear transcription factor that regulates islet gene expression.
- The enzyme glucokinase is a rate limiting step in glycolysis and determines the rate of adenosine triphosphate (ATP) production from glucose and the insulin secretory response in the beta cell. MODY 2, due to glucokinase mutations, is usually quite mild, associated with only slight fasting hyperglycemia and few if any microvascular diabetic complications. It generally responds well to hygienic measures or low doses of oral hypoglycemic agents.
- MODY 3, due to mutations is hepatic nuclear factor 1 α is the most common form, accounting for two birds of all MODY cases. The clinical course is of progressive beta cell failure and need for insulin therapy. Mutations in both alleles of glucokinase present with more severe neonatal diabetes. Mutation in one allele of the pancreatic duodenal homeobox 1 (PDX1) causes diabetes usually at a later age (~ 35 years) than other forms of MODY; mutations in both alleles of PDX1 causes pancreatic agenesis.

125. Insulin resistance in liver disease is due to

a. Steatosis

b. Hepatocyte damage

c. Decreased release of insulin

d. Decreased release of C – peptide

Answer is B: Hepatocyte damage (this is a new concept HEPATOGENOUS DIABETES)

Reference: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3124882/

- Increased insulin resistance is frequently associated with chronic liver disease and is a pathophysiological feature of hepatogenous diabetes. Distinctive factors including hepatic parenchymal cell damage, portal-systemic shunting and hepatitis C virus are responsible for the development of hepatogenous insulin resistance/diabetes
- Since blood glucose is delivered to the liver through the portal vein, hyperinsulinemia in patients with liver cirrhosis may be secondary to either hepatic parenchymal cell damage or to portal-systemic shunting .The rate at which insulin is degraded in the liver is reduced in patients with liver cirrhosis. Moreover, despite peripheral hyperinsulinemia, insulin levels in the portal and hepatic veins are decreased in cirrhotic patients with portal systemic shunting
- Hepatogenous DM is less often associated with a positive family history, retinopathy and cardiovascular complications. In fact, major causes of death in cirrhotic patients with DM relate to liver disease or its complications, such as chronic liver failure, hepatocellular carcinoma (HCC) and gastrointestinal hemorrhage. Therefore, the management of DM in patients with liver cirrhosis should aim to reduce such hepatic complications and to improve prognosis. Because the incidence of HCC has been well demonstrated to relate to DM. Therefore a major target in the management of DM should be to reduce the incidence of HCC in patients with liver cirrhosis.
- Around 30% to 60% of cirrhotic patients suffer from this metabolic disorder. Insulin resistance in muscular, hepatic and adipose tissues as well as hyperinsulinemia, seem to be pathophysiologic bases for HD. An impaired response of the islet ss-cells of the pancreas and the hepatic insulin resistance are also contributing factors. Diabetes develops when defective oxidative and nonoxidative muscle glucose metabolism develops. Non-alcoholic fatty liver disease (NAFLD), alcoholic cirrhosis, chronic hepatitis C (CHC), and hemochromatosis are more frequently associated with HD. HD in early cirrhosis stages may be sub clinical. Only insulin resistance and glucose intolerance may be observed. As liver disease advances, diabetes becomes clinically manifest, therefore HD may be considered as a marker for liver function deterioration

126. Not included in armamentarium of tests for malabsorbtion syndrome

a. D- Xylose

b. 14C Triolein breath test

c. 13 C Trioctanoin breath test

d. 13 C triclosan breath test

Answer is (d) 13 C triclosan breath test

Reference: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1766642/pdf/v043p00S13.pdf

D- xylose test	Sugar malabsorbtion and tests jejunal damage or proximal enteropathy
14 C triolein test	Fat malabsorbtion picked up by radiocarbon being tagged to the triglycerides
13 C trioactanoin	Fat malabsorbtion due to pancreatic exocrine insufficiency
13 C triclosan breath test	Triclosan is an antiseptic and appears the best answer from the given data.
SeHCAT is the usual name for 23-seleno-25-homo-tauro-cholic acid (selenium homocholic acid taurine or tauroselcholic acid.	It is used in a clinical test to diagnose bile acid malabsorption
Hydrogen breath test	For sugar malabsorbtion as unabsorbed sugar is degraded by bacteria.
13C acetate breath tests	For stomach emptying
Urea breath test	For H. Pylori that can split urea to CO2 which is produced in breath due the plaque build in teeth of h.Pylori can lead to erroneus results

D-xylose absorption test Xylose is a pentose that is passively absorbed by the jejunal mucosa. A standard dose of 5 g or, alternatively, 14.5 g/m2 (maximum dose of 25 g) of D-xylose is orally administered as a 10% solution in water. The test result is positive in the following instances:

- Children who weigh less than 30 kg - Serum level at 1 hour after ingestion is less than 25 mg/dL.
- Children who weigh more than 30 kg - The 5-hour urinary excretion is less than 15%.
- A positive test result suggests malabsorption due to proximal small bowel mucosal lesion (enteropathy).
- Beware of false-positive results (eg, from delayed gastric emptying, small bowel bacterial overgrowth, accelerated transit time).

The 14C-triolein breath test is used to investigate the absorption of fats from the small bowel. In principle, a 14C-labelled triglyceride is ingested, digested, absorbed and metabolised, releasing 14C-labelled carbon dioxide.The test may be performed in a day ward and requires laboratory facilities to detect the beta-emitting 14C.The test is unreliable in the following circumstances:

- diabetes mellitus
- gross obesity
- thyroid disease
- chronic respiratory insufficiency

151. Not a major criteria in acute rheumatic fever-

a. Polyarthralgia

b. subcutaneous nodules

c. chorea

d. carditis

Answer: polyarthralagia

Reference: chapter 332, Harrison textbook

Major manifestations	Carditis Polyarthritis Chorea Erythema marginatum Subcutaneous nodules
Minor manifestations	Clinical: fever, polyarthralgia Laboratory: elevated erythrocyte sedimentation rate or leukocyte count Electrocardiogram: prolonged P-R interval
Supporting evidence of a preceding streptococcal infection within the last 45 days	Elevated or rising anti-streptolysin O or other streptococcal antibody, or A positive throat culture, or Rapid antigen test for group A streptococcus, or Recent scarlet fever

152. Most common slowly growing vascular tumor of spinal cord , cerebellum and brain is :

a. Hemagioblastoma
b. Pilocytic astrocytoma
c. Meningioma
d. Medulloblastoma

Answer is A ; Hemangioblastoma

References : Harrison 18th chapter 343 / http://emedicine.medscape.com/article/250670-overview#a0112

The clinical presentation of hemangioblastomas usually depends on the anatomical location and growth patterns.

1. Cerebellar lesions may present with signs of cerebellar dysfunction, such as ataxia and discoordination, or with symptoms of increased intracranial pressure due to associated hydrocephalus. In general, intracranial hemangioblastomas present with a long history of minor neurological symptoms that, in most cases, are followed by a sudden exacerbation, which may necessitate immediate neurosurgical intervention.
2. Patients with spinal cord lesions most frequently present with pain, followed by signs of segmental and long-track dysfunction due to progressive compression of the spinal cord.
3. Patients with VHL disease may present with ocular or systemic symptoms due to involvement of other organs and systems.
4. The polycythemia that may develop in some patients with hemangio-blastomas usually
5. is clinically asymptomatic

153. A patient is hepatitis HBsAG and HBeAg positive. Which of the following is true about this patient

a. Acute hepatitis B
b. Hepatitis E infection
c. Chronic hepatitis B
d. Co infection of HBV with HDV

Answer is (a) Acute hepatitis B

Reference : table 304-5 harrison ,chapter 304 .

Table 304-5 Commonly Encountered Serologic Patterns of Hepatitis B Infection					
HBsAg	**Anti-HBs**	**Anti-HBc**	**HBeAg**	**Anti-HBe**	**Interpretation**
+	–	IgM	+	–	Acute hepatitis B, high infectivity
+	–	IgG	+	–	Chronic hepatitis B, high infectivity
+	–	IgG	–	+	Late acute or chronic hepatitis B, low infectivityHBeAg–negative ("precore–mutant") hepatitis B (chronic or, rarely, acute)
+	+	+	+/–	+/–	1. HBsAg of one subtype and heterotypic anti–HBs (common) 2. Process of seroconversion from HBsAg to anti– HBs (rare)
–	–	IgM	+/–	+/–	1. Acute hepatitis B 2. Anti–HBc "window"
–	–	IgG	–	+/–	1. Low–level hepatitis B carrier 2. Hepatitis B in remote past
–	+	IgG	–	+/–	Recovery from hepatitis B
–	+	–	–	–	1. Immunization with HBsAg (after vaccination) 2. Hepatitis B in the remote past (?) 3. False–positive

154. Not true about C.L.L
a. treatment is curative
b. no treatment in asymptomatic cases
c. for Leucocytosis , urgent treatment is required
d. combination therapy for patients less than 50 years

Answer: B: no treatment in asymptomatic cases
Reference: chapter 110, Harrison textbook.

- Patients with typical B cell CLL with no manifestations of the disease other than bone marrow involvement and lymphocytosis (Binet stage A) can be followed without specific therapy for their malignancy. These patients have a median survival >10 years, and some will never require therapy for this disorder.
- If the patient has normal number of circulating normal blood cells and is asymptomatic, many physicians would not initiate therapy for patients in the intermediate stage of the disease manifested by lymphadenopathy and/or hepatosplenomegaly.
- However, the median survival for these patients is 7 years, and most will require treatment in the first few years of follow-up. Patients who present with bone marrow failure (i.e., Rai stage III or IV or Binet stage C) will require initial therapy in almost all cases. These patients have a serious disorder with a median survival of only 1.5 years.
- It must be remembered that immune manifestations of typical B cell CLL should be managed independently of specific antileukemia therapy. For example, glucocorticoid therapy for autoimmune cytopenias and globulin replacement for patients with hypogammaglobulinemia should be used whether or not antileukemia therapy is given. Patients who present primarily with lymphoma and have a low IPI score have a 5-year survival of 75%, but those with a high IPI score have a 5-year survival of <40% and are more likely to require early therapy.
- The most common treatments for patients with typical B cell CLL/small lymphocytic lymphoma have been chlorambucil or fludarabine, alone or in combination. Chlorambucil can be administered orally with few immediate side effects, while fludarabine is administered IV and is associated with significant immune suppression. However, fludarabine is by far the more active agent and is the only drug associated with a significant incidence of complete remission. The combination of rituximab (375–500 mg/m2 day 1), fludarabine (25 mg/m2 days 2–4 on cycle 1 and 1–3 in subsequent cycles), and cyclophosphamide (250 mg/

m2 with fludarabine) achieves complete responses in 69% of patients, and those responses are associated with molecular remissions in half of the cases.

155. Bell's palsy not correct is :

a. Steroid is mandatory

b. Unilateral facial weakness

c. Urgent surgical decompression

d. Herpes virus is not the cause

Answer: C: urgent surgical decompression

Reference: Harrison chapter 376.

Bells palsy: Incidence about 1 in 60 persons in a lifetime.

Causes:

- Herpes simplex virus (HSV) type 1 DNA was frequently detected in endo-neural fluid and posterior auricular muscle, suggesting that a reactivation of this virus in the geniculate ganglion may be responsible for most cases.
- Reactivation of varicella zoster virus is associated with Bell's palsy in up to one-third of cases, and may represent the second most frequent cause. A variety of other viruses have also been implicated less commonly.
- An increased incidence of Bell's palsy was also reported among recipients of inactivated intranasal influenza vaccine, and it was hypothesized that this could have resulted from the Escherichia coli enterotoxin used as adjuvant or to reactivation of latent virus.

Clinical Manifestations:

1. Pain behind the ear may precede the paralysis for a day or two .
2. The onset of Bell's palsy is fairly abrupt, maximal weakness being attained by 48 h as a general rule.
3. Taste sensation may be lost unilaterally, and hyperacusis may be present. In some cases there is mild cerebrospinal fluid lymphocytosis.

MRI may reveal swelling and uniform enhancement of the geniculate ganglion and facial nerve and, in some cases, entrapment of the swollen nerve in the temporal bone. Approximately 80% of patients recover within a few weeks or months. Electromyography may be of some prognostic value; evidence of denervation after 10 days indicates there has been axonal degeneration, that there will be a long delay (3 months as a rule) before regeneration occurs, and that it may be incomplete. The presence of incomplete paralysis in the first week is the most favorable prognostic sign.

Differential Diagnosis

- Lyme disease can cause unilateral or bilateral involvement
- The Ramsay Hunt syndrome, caused by reactivation of herpes zoster in the geniculate ganglion, consists of a severe facial palsy associated with a vesicular eruption in the external auditory canal.
- Sarcoidosis and in Guillain-Barré syndrome
- Leprosy frequently involves the facial nerve, and facial neuropathy may also occur in diabetes mellitus, connective tissue diseases including Sjögren's syndrome, and amyloidosis.
- Melkersson-Rosenthal syndrome consists of recurrent facial paralysis; recurrent—and eventually permanent—facial (particularly labial) edema; and, less constantly, plication of the tongue.
- Acoustic neuromas frequently involve the facial nerve by local compression. Infarcts, demyelinating lesions of multiple sclerosis, and tumors are the common pontine lesions that interrupt the facial nerve fibers;

Treatment:

1. Use of paper tape to depress the upper eyelid during sleep and prevent corneal drying, and massage of the weakened muscles.
2. A course of glucocorticoids, given as prednisone 60–80 mg daily during the first 5 days and then tapered over the next 5 days, modestly shortens the recovery period and improves the functional outcome.
3. Although two large recently published randomized trials found no added benefit of antiviral agents valacyclovir (1000 mg daily for 5–7 days) or acyclovir (400 mg five times daily for 10 days) compared to glucocorticoids alone, the overall weight of evidence suggests that the combination therapy with prednisone plus valacyclovir may be marginally better than prednisone alone, especially in patients with severe clinical presentations

4. Surgery to decompress the facial nerve is controversial. Patients with a poor prognosis, identified by facial nerve testing or persistent paralysis, appear to benefit the most from surgical intervention. Surgery may be considered in patients with complete Bell palsy that has not responded to medical therapy and with greater than 90% axonal degeneration, as shown on facial nerve EMG within 3 weeks of the onset of paralysis. The problem must be localized with MRI. The surgeon can then decide if the maxillary segment should be decompressed externally or if the labyrinthine segment and geniculate ganglion should be decompressed with a middle fossa craniotomy. A study in patients with greater than 90% degeneration demonstrated superior results in the cohort that underwent middle fossa decompression, compared with the cohort that chose not to pursue surgical decompression. In the surgical group, 91% of cases exhibited a postoperative House-Brackmann grade of I or II. In the nonsurgical group, 58% of the patients had a poor result, with a House-Brackmann grade of III or IV at 7 months. The best surgical results were obtained when the procedure was done within 14 days after the onset of paralysis

156. 48 year old women with history of seizures has presented with gross haematuria and left flank pain. Abdominal CT scan reveals-left perinephric hematoma with 3cm angiomyolipoma along with multiple right renal angiomyolipomas measuring from 1.5-6.5 cm. The most likely diagnosis is :

a. Tuberous sclerosis
b. Von Hippel Landau syndrome
c. Familial angiolipomatosis
d. ADPKD

Answer is A : tuberous sclerosis
References: chapter 596.2 NELSON and http://emedicine.medscape.com/article/376848-overview#a20

Tuberous sclerosis	Seizures/ behaviour problems with renal angiomylipomas and they can bleed leading to the perinephric hematoma formation as mentioned in the question
Von Hippel Landau	Von Hippel–Lindau (VHL) disease is a rare, autosomal dominant genetic condition that predisposes individuals to benign and malignant tumours. The most common tumours found in VHL are central nervous system and retinal hemangioblastomas, clear cell renal carcinomas, pheochromocytomas, pancreatic neuroendocrine tumours, pancreatic cysts, endolymphatic sac tumors and epididymal papillary cystadenomas. VHL results from a mutation in the von Hippel–Lindau tumor suppressor gene on chromosome 3p.
Familial angiolipomatosis	It's a important a differential diagnosis of Neurofibromatosis 1. The patients have seizures and lesion on skin which contain fat but may be wrongly ascribed to neurofibromas
Autosomal dominant polycystic kidney	Presents at 30-45 yrs of age with HTN, hematuria and bilaterally enlarged kidneys showing multiple large cysts. CNS manifestation is berry aneurysm and hence is ruled out

 MORE DETAILS ABOUT TUBEROUS SCLEROSIS FROM RADIOLOGICAL PERSPECTIVE

1. The most common neurologic manifestations of Tuberous Sclerosis consist of seizures, cognitive impairment, and behavioral abnormalities including autism. The characteristic brain lesion is a cortical tuber. Tubers are located in the convolutions of the cerebral hemispheres and are also present in the subependymal

region, where they undergo calcification and project into the ventricular cavity, producing a candle-dripping appearance. Generally, the greater the number of tubers, the more neurologically impaired is the patient.
2. TS may present during infancy with infantile spasms and a hypsarrhythmic EEG pattern.
3. The seizures may be difficult to control and, at a later age, they may develop into myoclonic epilepsy, infantile spasms associated with TS are treated with vigabatrin (rather than adrenocorticotropic hormone) with good results.
4. Angiomyolipomas are usually well-marginated, cortical heterogeneous tumors with predominantly fatty attenuation; rarely, higher attenuation is seen in patients who have tumors with minimal fat content. The average attenuation depends on the relative proportions of fat and other soft tissue in the angiomyolipoma. In small masses, fat may be averaged out with region-of-interest (ROI) circles, and pixel maps may be useful. Attenuations of less than –20 Hounsfield units (HU) are widely accepted as confirming the presence of fat; this finding virtually confirms the diagnosis of angiomyolipoma

5. Histopathology of angiomyolipoma
o No true capsule
o Commonly bleed
o Tumor composed of fat, smooth muscle, aggregates of thick-walled blood vessels

6. Types of angiomyolipoma
o Isolated angiomyolipoma is most common (80%)
1. Usually solitary
2. Unilateral (80% on right side)
3. Not associated with tuberous sclerosis
4. Mean age of incidence: 40s
5. Much more common in females
o Angiomyolipoma associated with tuberous sclerosis (in 20%)
1. Angiomyolipoma occurs in 80% of patients with tuberous sclerosis
• Commonly large
• Usually bilateral
• Usually multiple
2. May be only evidence of tuberous sclerosis
3. Mean age of incidence: teens
4. Equal incidence in males and females

7. Signs and symptoms
o Small lesions are asymptomatic (60%)
o Acute flank / abdominal pain (due to hemorrhage) most common presenting symptom
o Hematuria (40%)
o Palpable mass (47%)
o Shock (due to massive retroperitoneal hemorrhage)
8. Imaging findings
o Mostly small lesions <5 cm in diameter
o Many have a large exophytic component (25%)
o Calcifications not common (6%)
o Plain film findings
1. Mass of fat lucency is lesion is large enough
o CT findings
1. Well-marginated, cortical-based, heterogeneous tumor predominantly of fat density (<-20 HU)
2. Variable enhancement (smooth muscle, vessels)

157. Most effective management in medically intractable seizures?
a. Ketotic diet

b. Vagus nerve stimulation
c. Deep brain stimulationn
d. Surgery
Answer: D : surgery
Reference:

Ketotic diet	Useful in Pediatric seizures like rett syndrome, Lennox Gastuat syndrome. It entails consumption of 3-4 grams of fat per gram of carbohydrates. This probably works by reducing the metabolism of the epileptogenic focus.
Vagus nerve stimulation	Vagal nerve stimulation (VNS) is a palliative device approved to treat medically refractory focal-onset epilepsy in adults. Some studies demonstrate its efficacy in focal-onset seizures and in a small number of patients with primary generalized epilepsy. Randomized studies showed modest efficacy at 3 months, but postmarketing experience shows delayed improvement in another group of patients
Deep brain stimulation (emedicine)	The NeuroPace RNS System, a device that is implanted into the cranium, senses and records electrocorticographic patterns and delivers short trains of current pulses to interrupt ictal discharges in the brain. The Neurological Devices panel of the US Food and Drug Administration (FDA) has concluded that this device is safe and effective in patients with partial-onset epilepsy in whom other antiepileptic treatment approaches have failed and that the benefits outweigh the risks
Surgery (Harrison)	About 70% of patients treated with temporal lobectomy will become seizure free, and another 15–25% will have at least a 90% reduction in seizure frequency. Marked improvement is also usually seen in patients treated with hemispherectomy for catastrophic seizure disorders due to large hemispheric abnormalities. Postoperatively, patients generally need to remain on antiepileptic drug therapy, but the marked reduction of seizures following resective surgery can have a very beneficial effect on quality of life.

Surgery (Harrison) About 70% of patients treated with temporal lobectomy will become seizure free, and another 15–25% will have at least a 90% reduction in seizure frequency. Marked improvement is also usually seen in patients treated with hemispherectomy for catastrophic seizure disorders due to large hemispheric abnormalities. Postoperatively, patients generally need to remain on antiepileptic drug therapy, but the marked reduction of seizures following resective surgery can have a very beneficial effect on quality of life.

- The most common surgical procedure for patients with temporal lobe epilepsy involves resection of the anteromedial temporal lobe (temporal lobectomy) or a more limited removal of the underlying hippocampus and amygdala (amygdalohippocampectomy).
- Focal seizures arising from extratemporal regions may be abolished by a focal neocortical resection with precise removal of an identified lesion (lesionectomy). When the cortical region cannot be removed, multiple subpial transection, which disrupts intracortical connections, is sometimes used to prevent seizure spread. Hemispherectomy or multilobar resection is useful for some patients with severe seizures due to hemispheric abnormalities such as hemimegalencephaly or other dysplastic abnormalities, and corpus callosotomy has been shown to be effective for disabling tonic or atonic seizures, usually when they are part of a mixed-seizure syndrome (e.g., Lennox-Gastaut syndrome).
- Presurgical evaluation is designed to identify the functional and structural basis of the patient's sei-

zure disorder. Inpatient video-EEG monitoring is used to define the anatomic location of the seizure focus and to correlate the abnormal electrophysiologic activity with behavioral manifestations of the seizure. Routine scalp or scalp-sphenoidal recordings are usually sufficient for localization, and advances in neuroimaging have made the use of invasive electrophysiologic monitoring such as implanted depth electrodes or subdural electrodes less common. A high-resolution MRI scan is routinely used to identify structural lesions, and this is sometimes augmented with MEG. Functional imaging studies such as SPECT and PET are adjunctive tests that may help verify the localization of an apparent epileptogenic region. Once the presumed location of the seizure onset is identified, additional studies, including neuropsychological testing and the intracarotid amobarbital test (Wada test) may be used to assess language and memory localization and to determine the possible functional consequences of surgical removal of the epileptogenic region. In some cases, the exact extent of the resection to be undertaken is determined by performing cortical mapping at the time of the surgical procedure, allowing for a tailored resection. This involves electrocorticographic recordings made with electrodes on the surface of the brain to identify the extent of epileptiform disturbances. If the region to be resected is within or near brain regions suspected of having sensorimotor or language function, electrical cortical stimulation mapping is performed on the awake patient to determine the function of cortical regions in question in order to avoid resection of so-called eloquent cortex and thereby minimize postsurgical deficits.

- Advances in presurgical evaluation and microsurgical techniques have led to a steady increase in the success of epilepsy surgery. Clinically significant complications of surgery are <5%, and the use of functional mapping procedures has markedly reduced the neurologic sequelae due to removal or sectioning of brain tissue.

158. Alzhiemers lobes affected?

a. Frontal and temporal lobe
b. Temporal and parietal lobe
c. Parietal and occipital lobe
d. Parietal and frontal lobe

Answer is (b) Temporal and parietal lobe

Reference: Harrison 18th edition ,chapter 371 dementia

AD most often presents with an insidious onset of memory loss followed by a slowly progressive dementia over several years. Pathologically, atrophy is distributed throughout the medial temporal lobes, as well as lateral and medial parietal lobes and lateral frontal cortex.

The main purpose of imaging is to exclude other disorders, such as primary and secondary neoplasms, vascular dementia, diffuse white matter disease, and NPH; it also helps to distinguish AD from other degenerative disorders with distinctive imaging patterns such as FTD or CJD. Functional imaging studies in AD reveal hypoperfusion or hypometabolism in the posterior temporal-parietal cortex.

159. Which of the following statements is correct about raised ESR in tuberculosis?

a. Its increased due to large RBC
b. Its increased due to increase in immunoglobulins
c. It is used to determine response for treatment
d. It is an incidental finding.

Answer: B: It's increased due to increase in immunoglobulins

Reference:

1. Wintrobe hematology 11th edition page 60
2. http://emedicine.medscape.com/article/2085201-overview#a30

The erythrocyte sedimentation rate (ESR) is a common but nonspecific test that is often used as an indicator of active disease.

Significant specific indications for ESR testing include the following:

- Diagnosis and monitoring of giant cell arteritis
- Diagnosis and monitoring of polymyalgia rheumatica

- Monitoring of rheumatoid arthritis
- Monitoring of systemic lupus Erythematosus

ESR reflects the tendency of red blood cells to settle more rapidly in the face of some disease states, usually because of increases in plasma fibrinogen, immunoglobulins, and other acute-phase reaction proteins. In addition, changes in red cell shape or numbers may affect the ESR.

1. Sickle cells and polycythemia and spherocytosis tend to decrease the ESR, whereas anemia may increase it.
2. Factors that increase ESR
- Old age
- Female
- Pregnancy
- Anemia
- Red blood cell abnormalities
    - Macrocytosis
- Technical factors
    - Dilutional problem
    - Increased temperature of specimen
    - Tilted ESR tube
- Elevated fibrinogen level
    - Infection
    - Inflammation
    - Malignancy

3. ESR also increases with age in otherwise healthy people (although it tends to fall in adults older than the age of 75 and tends to be higher in women.

4. People with liver diseases, carcinomas, or other serious diseases may have a normal to low ESR because of an inability to produce the acute-phase proteins.

The ESR is measured by the Westergren or Wintrobe method or by a modification of these tests. Both are measured in millimeters per hour, but the normal values for each method vary because of differences in tube length and shape. Both methods require correction for patient anemia. Several technical variations to the method of ESR determination have been introduced, including micromethods, sedimentation at a 45-degree angle, and the zeta sedimentation rate. The zeta sedimentation rate measures erythrocyte packing in four 45-second cycles of dispersion and compaction in capillary tubes. This requires a special instrument, the ZetafugeThe rate at which red blood cells settle out when anticoagulated whole blood is allowed to stand is known as the erythrocyte sedimentation rate.

The ESR is affected by the concentrations of immunoglobulins and acute phase proteins (fibrinogen, C-reactive protein, alpha-1 antitrypsin, haptoglobin), and is a sensitive, but nonspecific, indicator of inflammation and tissue damage
Conditions that may be associated with a highly elevated ESR (>100 mm/hr) include the following:
- Hypersensitivity vasculitis
- Giant cell arteritis
- Waldenström macroglobulinemia
- Polymyalgia rheumatica
- Metastatic cancer
- Chronic infection
- Hyperfibrogenemia

160. A 8 year old boy is having mental retardation. On examination he is found to have a well defined kidney lump. On CT scan a well-defined hypo-echoic lesion in the kidney and multiple lesions in the liver showing density of -50 to -80 Hounsfield units. Probable diagnosis is

a. Autosomal recessive polycystic kidney
b. tuberous sclerosis
c. Von Hippel landau
d. Paraganglioma

Answer: (b) tuberous sclerosis

Well this questions test your radiology as well as medicine skills. So you should know that typical values in hounsfield units are for different elements and tissues range from -1000 to more than +1000, air versus bone. Of importance is that fat is -100, muscle and blood around +40. This makes it possible to evaluate things that do not have a specific structure – a rounded tumor could be made of fat or not – benign or malignant.

NOW WHY IS THE LESION MENTIONED IN THE QUESTION NOT A CYST?

Fluid filled spaces, for example cysts, could contain something close to water or have an attenuation corresponding to blood – which is positive 35-40 Hounsfield units.

Substance	***HU***
Air	-1000
Lung	-700
Fat	-84
Water	0
CSF	15
Blood	+30 to +45
Muscle	+40
Soft Tissue	+100 to +300
Cancellous Bone	+700
Dense Bone	+3000

Now let us evaluate the choices provided individually.

ARPKD	• Mental retardation or seizures is not seen. • As mentioned above the cysts have positive hounsfield units where as is the question the units are negative which are indicative of fat /angiomylipoma. • Hence ARPKD is ruled out on basis of 2 points mentioned above • Patients in ARPKD present prenatally with massively enlarged kidneys and oligohydramnios. In infants, Potter facies with low-set, flattened ears; short, snubbed nose; deep eye creases; and micrognathia, all secondary to oligohydramnios, can be found.. • An abdominal mass may manifest after the newborn period because of renal masses or hepato-splenomegaly. Impaired renal function is present in 70-80% of infants. Renal cysts in children may be an incidental finding. • Hepatic involvement is present in all children with autosomal recessive polycystic kidney disease but may not manifest in neonates (50-60%).
Tuberous sclerosis	• Seizures or mental retardation is present dependant on number of tubers or subependymal nodules seen in these patients. • AMLs are benign mesenchymal tumors, composed of blood vessels, smooth muscle, and mature adipose tissue, that arise primarily in the kidneys. • AMLs may also occur, however, in extra-renal sites, such as the liver (incidence is 25% as per emedicine 2013 update), spleen, abdominal wall, retroperitoneum, uterus, oral cavity, penis, spermatic cord, fallopian tube, vagina, skin, and lung. Approximately 80% of renal AMLs occur sporadically, and 20% occur in patients with TSC. • AMLs may also occur in association with other phacomytoses (von Recklinghausen disease, von Hippel-Lindau disease(IT HAS A ADULT PRESENTATION),Sturge-Weber syndrome), autosomal dominant polycystic disease, and pulmonary lymphangio-myomatosis
VHL	• The primary cause of morbidity and mortality in von Hippel-Lindau disease, as well as the most serious sequela of the condition, involves the malignant degeneration of renal cysts. Renal cysts are seldom clinically significant; however, in von Hippel-Lindau disease they have an appreciable rate of malignant transformation. • Consequently, renal cell carcinoma is the leading cause of death in patients with von Hippel-Lindau disease, with a prevalence of as high as 75% reported in one autopsy series. • LIVER INVOLVEMENT IN VHL IS HEMANGIOMA WHICH HAS POSITIVE HOUNSFIELD UNITS. • The mean age of diagnosis of renal cell carcinoma in VHL disease is 44 years, and 70%
Paraganglioma	• Paraganglioma is rare neuroendocrine neoplasm that may develop at various body sites (including the head, neck, thorax and abdomen). • About 97% are benign and cured by surgical removal; the remaining 3% are malignant because they are able to produce distant metastases. “Paraganglioma” is now the most-widely accepted term for these lesions, that have been also described as: glomus tumor, chemodectoma, perithelioma, fibroangioma, and sympathetic nevi

161. pleural tap pierces all except :
a. skin
b. intercostal muscle
c. Endo-thoracic fascia
d. pulmonary pleura

Answer: (d) pulmonary pleura

Reference:

This question is probably testing English of doctors. Well we have common sense and hence can solve this one. Each lung is invested by an exceedingly delicate serous membrane, the pleura,which is arranged in the form of a closed invaginated sac. A portion of the serous membrane covers the surface of the lung and dips into the fissures between its lobes; it is called the pulmonary pleura (or visceral pleura).Endothoracic fascia is layer of loose connective tissue that separates the ribs and muscles from the underlying pleural.

The following layers are pierced during thoracocenteis/pleural tapping:

1. skin- superficial fascia
2. Serratus anterior
3. external intercostal
4. internal intercostal
5. innermost intercoastal
6. parietal pleura

7. pleural cavity is reached and fluid is accessed

162. A middle aged hypertensive male develops sudden onset unconsciousness, with nuchal rigidity. Rest of the neurological examination is within normal limits.

a. SAH
b. Intra-parenchymal bleed
c. Extra-dural hemorrhage
d. Sub dural haemorrhage.

Answer: (a) SAH

Reference: Harrison 18 th edition chapter 275

- At the moment of aneurysmal rupture with major SAH, the ICP suddenly rises. This may account for the sudden transient loss of consciousness that occurs in nearly half of patients. Sudden loss of consciousness may be preceded by a brief moment of excruciating headache, but most patients first complain of headache upon regaining consciousness. In 10% of cases, aneurysmal bleeding is severe enough to cause loss of consciousness for several days. In 45% of cases, severe headache associated with exertion is the presenting complaint. The patient often calls the headache "the worst headache of my life"; however, the most important characteristic is sudden onset. Occasionally, these ruptures may present as headache of only moderate intensity or as a change in the patient's usual headache pattern. The headache is usually generalized, often with neck stiffness, and vomiting is common.
- Although sudden headache in the absence of focal neurologic symptoms is the hallmark of aneurysmal rupture, focal neurologic deficits may occur. Anterior communicating artery or MCA bifurcation aneurysms may rupture into the adjacent brain or subdural space and form a hematoma large enough to produce mass effect. The deficits that result can include hemiparesis, aphasia, and abulia.
- Occasionally, prodromal symptoms suggest the location of a progressively enlarging unruptured aneurysm. A third cranial nerve palsy, particularly when associated with pupillary dilation, loss of ipsilateral (but retained contralateral) light reflex, and focal pain above or behind the eye, may occur with an expanding aneurysm at the junction of the posterior communicating artery and the internal carotid artery. A sixth nerve palsy may indicate an aneurysm in the cavernous sinus, and visual field defects can occur with an expanding supraclinoid carotid or anterior cerebral artery aneurysm. Occipital and posterior cervical pain may signal a posterior inferior cerebellar artery or anterior inferior cerebellar artery aneurysm
- Pain in or behind the eye and in the low temple can occur with an expanding MCA aneurysm. Thunderclap headache if written in question again favours diagnosis of SAH.

163. A 30 year old patient is having high grade fever with altered sensorium. On third day the patient develops seizures and has Nuchal rigidity. The CSF examination of the patient shows presence of 300 cells/cu.mm, protein 70mg%, glucose 60mg% (BLOOD GLUCOSE= 95mg%) with polymorph 65% and the rest being lymphocytes. The most probable diagnosis of the patient is :

a. Herpetic encephalitis
b. Tubercular meningitis
c. Pyogenic meningitis
d. Cerebral malaria.

Answer is A: herpetic encephalitis

Reference: chapter 381 harrison 18 th edition

Data provided in question		Interpretation
CSF cytology	300 cells/cu mm	In favour of bacterial meningitis
CSF protein	70mg%	In favour of bacterial as well as viral encephalitis
CSF sugar	50 mg% against a blood glucose of 95mg%	Normally CSF sugar is 2/3 rd of blood sugar which means that a value of blood sugar of 95mg% ,normal CSF sugar would be 63.3 mg%. Hence the value of 60mg% in the question is pretty close to normal value
CSF / serum glucose ratio	60/95 = 0.63	Harrison states it bacterial meningitis it should be less than 0.4 and is the only point against bacterial meningitis.
CSF cells	65% polymorpho-nuclear cells	In favour of bacterial meningitis. Harrison states in viral encephalitis persisting CSF neutrophilia should prompt consideration of bacterial infection, leptospirosis, amebic infection, and noninfectious processes such as acute hemorrhagic leukoencephalitis
Clinical	Short duration fever with subsequent development of seizures and nuchal rigidity satisfying the clinical triad for meningitis of bacterial etiology	Cerebral malaria –CSF is normal TBM- long duration with cob web coagulum with straw CSF, low sugar with protein upto 1-2 g% Viral encephalitis- due to irritation of brain parenchyma leading to patient with encephalitis commonly has an altered level of consciousness or a depressed level of consciousness to coma, and evidence of either focal or diffuse neurologic signs and symptoms. Patients with encephalitis may have hallucinations, agitation, personality change, behavioral disorders, and, at times, a frankly psychotic state. Focal or generalized seizures occur in many patients with encephalitis

• Harrison states for viral encephalitis that "CSF examination should be performed in all patients with suspected viral encephalitis unless contraindicated by the presence of severely increased ICP. The characteristic CSF profile is indistinguishable from that of viral meningitis and typically consists of a lymphocytic pleocytosis, a mildly elevated protein concentration, and a normal glucose concentration

• Polymorphonuclear pleocytosis occurs in 45% of patients with WNV encephalitis and is also a common feature in CMV myeloradiculitis in immunocompromised patients. Large numbers of CSF PMNs may be present in patients with encephalitis due to EEE virus, echovirus 9, and, more rarely, other enteroviruses. However, persisting CSF neutrophilia should prompt consideration of bacterial infection, leptospirosis, amebic infection, and noninfectious processes such as acute hemorrhagic leukoencephalitis

PEDIATRICS

164. A preterm baby has developed seizures on day 2 of life. The best investigation is :

a. CT scan
b. Transcranial USG
c. MRI
d. blood glucose

Answer: B: Trans-cranial USG

Reference: Chapter 99 intra-cranial USG and Periventricular Leukomalacia.

• Intracranial hemorrhage is suspected on the basis of the history, clinical manifestations, and knowledge of the birthweight-specific risks for intraventricular hemorrhage. The associated clinical signs of IVH are typically nonspecific or absent; therefore, it is recommended that premature infants <34 wk gestation be evaluated with routine real-time cranial ultrasonography through the anterior fontanel to screen for IVH. Infants <1,000 g are at highest risk and should have a cranial ultrasound within the 1st 3–5 days of age, when approximately 75% of lesions will be detectable.

• Ultrasound is the preferred imaging technique for screening because it is noninvasive, portable, reproducible and sensitive and specific for detection of IVH. Infants weighing 1,001–1,500 g should be examined within the 1st 7–14 days of life. All at-risk infants should have a follow-up ultrasound performed at 36–40 wk postmenstrual age to evaluate adequately for PVL, because cystic changes related to perinatal injury may not be visible for at least 2–4 wk. Twenty-nine per cent of LBW infants who later developed

cerebral palsy did not have radiographic evidence of PVL until after 28 days. Ultrasound examination also detects the precystic and cystic symmetric lesions of PVL and the asymmetric intraparenchymal echogenic lesions of cortical hemorrhagic infarction.

- Furthermore, the delayed development of cortical atrophy, porencephaly, and the severity, progression, or regression of posthemorrhagic hydrocephalus can be determined by serial ultrasonography.

165. a Preterm baby with PDA will have all except:
a. Co2 washout
b. Pulmonary haemorrhage
c. Necrotising enterocolitis
d. Bounding pulses
Answer : A carbon dioxide washout
Reference: nelson pediatrics chapter 101.4
Some neonates with RDS may have clinically significant shunting through a patent ductus arteriosus (PDA). Delayed closure of the PDA is associated with hypoxia, acidosis,increased pulmonary pressure secondary to vasoconstriction, systemic hypotension, immaturity, and local release of prostaglandins, which dilate the ductus. There is a relationship between early adrenal insufficiency, ductal patency, airway inflammation, and the development of BPD. Shunting through the PDA may initially be bidirectional or right to left. As RDS resolves, pulmonary vascular resistance decreases, and left-to-right shunting may occur and lead to left ventricular volume overload and pulmonary edema.
Manifestations of PDA may include
(1) apnea for unexplained reasons in an infant recovering from RDS;
(2) a hyperdynamic precordium, bounding peripheral pulses, wide pulse pressure, and a continuous or systolic murmur with or without extension into diastole or an apical diastolic murmur, multiple clicks resembling the shaking of dice;
(3) Carbon dioxide retention;
(4) Increasing oxygen dependence;
(5) X-ray evidence of cardiomegaly and increased pulmonary vascular markings; and (6) hepatomegaly.
(7) Pulmonary hemorrhage can occur due to increased pressure in pulmonary circulation.(emedicine)
The diagnosis is confirmed by echocardiographic visualization of a PDA with Doppler flow demonstrating left-to-right or bidirectional shunting. VLBW infants with PDA are at increased risk of more prolonged and more severe RDS, bronchopulmonary dysplasia, and death. Prophylactic “closure,” closure of the asymptomatic but clinically detected PDA, and closure of the symptomatic PDA are three strategies to manage a PDA. Interventions include fluid restriction, the use of diuretics, the use of cyclo-oxygenase inhibitors, and surgical closure

166. A preterm with 1.5 kg is given high flow oxygen, which of the following is most likely to develop in child:
a. Retinopathy of prematurity
b. Glaucoma
c. Retinal detachment
d. Brocho-pulmonary dysplasia
Answer: A,retinopathy of prematurity
Reference: chapter 629 nelson.

- Retinopathy of prematurity ROP is a complex disease of the developing retinal vasculature in premature infants. Exposure to the extrauterine environment including the necessarily high inspired oxygen concentrations produces cellular damage, perhaps mediated by free radicals. Later in the course of the disease, peripheral hypoxia develops and vascular endothelial growth factors (VEGF) are produced in the nonvascularized retina. These growth factors stimulate abnormal vasculogenesis, and neovascularization may occur. Because of poor pulmonary function, a state of relative retinal hypoxia occurs. This causes upregulation of VEGF, which, in susceptible infants, can cause abnormal fibrovascular growth. This neovascularization may then lead to scarring and vision lossSystematic serial ophthalmologic examinations of infants at risk are

recommended. Guidelines vary but generally include infants weighing less than 1,500 g at birth and those born before 31 wk of gestational age. Infants born weighing more than 1,500 g who have an unstable clinical course and are thought to be at high risk should also be examined for ROP. The initial examination should be performed at 4–6 wk of chronological age or at 31–33 wk postconceptional age. ROP is diagnosed most often at 32–44 wk after conception.

- BPD is a disease primarily of infants <1,000 g born at less than 28 wk gestation, many of whom have little or no lung disease at birth, but develop progressive respiratory failure over the 1st few weeks of life. It causes development of oxygen dependency and is NOT DUE TO OXYGEN ADMINISTRATION.

- When compared with infants with classic BPD, most current infants with BPD do not have the prominent airway changes of squamous metaplasia and peribronchial fibrosis, severe alveolar septal fibrosis, or hypertensive vascular changesThe occurrence of BPD is inversely related to gestational age. Instead of showing improvement on the 3rd–4th day, consistent with the natural course of RDS, some infants develop an increased need for oxygen and ventilatory support. Respiratory distress persists or worsens and is characterized by hypoxia, hypercapnia, oxygen dependence, and, in severe cases, the development of right-sided heart failure. The chest roentgenogram may reveal pulmonary interstitial emphysema, wandering atelectasis with concomitant hyperinflation, and cyst formation. Four distinct pathologic stages of classic BPD have been identified, which are acute lung injury, exudative bronchiolitis, proliferative bronchiolitis, and obliterative fibroproliferative bronchiolitis

167. A 7 year old child is having steroid DEPENDANT Nephrotic syndrome. His weight is 30 kg and eight of 106 cm. he is having truncal obesity with subcapsular bilateral cataracts. Best drug for this patient:

a. Mycophenolate
b. Levamisole
c. Cyclophosphamide
d. Azathioprine

Answer is C : cyclophosphamide
Reference: nelson text book of paediatrics ,chapter 527
Steroid-dependent patients, frequent relapsers, and steroid-resistant patients may be candidates for alternative agents, particularly if the child suffers severe corticosteroid toxicity (cushingoid appearance, hypertension, cataracts, and/or growth failure). Cyclophosphamide prolongs the duration of remission and reduces the number of relapses in children with frequently relapsing and steroid-dependent nephrotic syndrome. The potential side effects of the drug (neutropenia, disseminated varicella, hemorrhagic cystitis, alopecia, sterility, increased risk of future malignancy) should be carefully reviewed with the family before initiating treatment. The dose of cyclophosphamide is 2–3 mg/kg/24 hr given as a single oral dose, for a total duration of 8–12 wk. Alternate-day prednisone therapy is often continued during the course of cyclophosphamide administration. During cyclophosphamide therapy, the white blood cell count must be monitored weekly and the drug should be withheld if the count falls below 5,000/mm3.

168. A child with bigger limbs (history suggestive of hemi-hypertrophy) and abdominal mass is suggestive of

a. Nephroblastoma
b. Neuroblastoma
c. Rhabdomyosarcoma
d. Wilm tumor

Answer : D /A
Reference: chapter 492 nelson txtbook

- Hemihypertrophy ± Beckwith syndrome -Wilms tumor WT1 gene.
- 25% develop tumor, mostly in first 5 yr of life .
- Several syndromes and congenital abnormalities commonly are reported in patients with Wilms tu-

mor

1. WAGR syndrome is a contiguous gene deletion syndrome that consists of Wilms tumor, aniridia, genitourinary abnormalities (cryptorchidism, streak ovaries, bicornate uterus, ambiguous genitalia), and mental retardation. Patients with this syndrome have a constitutional deletion of chromosome 11p13 where the Wilms tumor gene, WT1, and the aniridia gene, PAX6, are located.

2 Denys-Drash syndrome is characterized by male pseudohermaphrodism, early-onset renal failure characterized by mesangial sclerosis, and an increased risk of Wilms tumor. Patients with this syndrome typically carry a missense mutation in the WT1 gene.

3. Beckwith-Wiedemann syndrome is characterized by hemihypertrophy, macroglossia, and viscero-megaly, with a 3–5% risk of developing Wilms tumor. A variety of 11p15.5 abnormalities have been reported in patients with this syndrome, and it is postulated that a second Wilms tumor gene, WT2, is located in this region. Loss of imprinting of the insulin-like growth factor 2 gene, an epigenetic process, also is associated with Wilms tumor. Other syndromes or conditions with an increased risk of Wilms tumor include hemihy-pertrophy, sporadic aniridia, genitourinary anomalies, Pearlman syndrome, Sotos syndrome, neurofibromato-sis (von Recklinghausen disease), and von Willebrand disease. The genitourinary anomalies most commonly associated with Wilms tumor are hypoplasia, fusion and ectopia of the kidney, duplications of the collecting systems, hypospadias, and cryptorchidism.

169. A child is able to suckle and breathe simultaneously because of :
a. small tongue
b. high larygnx
c. small phyranx
d. small soft palate
Answer: high larynx
Reference:
Babies on sucking elevate their relatively higher larynx that forms a milk proof seal with nasopharynx allowing them to continue suckle plus feed together. In mature larynx this would imply pausing between suckling and drinking

170. Which of the following is considered a developmental delay?
a. Pincer grasp not developed by 9 months
b. Moving up and downstairs by 21/2 years
c. Not able to sit at 9 months
d. Two word syllable at 1 ½ years
Answer is C : Not able to sit at 9 months
Reference: OP Ghai page no 33 table 2.5 and Nelson chapter 9 table 9.1

Milestone	Normal age of appearance
Pincer grasp	9-10 months as per OP ghai page 28
Moving up and downstairs	30 months as per nelson table 9.1 chapter 9
Ability to sit without support	8 months and OP GHAI mentions in table 2.5 as not sitting without support by 9-10 months as RED FLAG IN CHILD DEVELOPMENT.
Two word syllable	Syllable is a basic unit of speech like water word is composed up of wa+ ter sound joined together. Children can speak a sentence composed of subject + verb at 24 months. As per nelson quote : 18months = 10 words (average); names pictures; identifies one or more parts of body

Syllable is a basic unit of speech like water word is composed up of wa+ ter sound joined together. Children can speak a sentence composed of subject + verb at 24 months.

The milestones referred in the questions have been italicized in the text below.
TABLE 9.1 Emerging Patterns of Behavior from 1 to 5 Yr of Age

15 MO	
Motor:	Walks alone; crawls up stairs
Adaptive:	Makes tower of 3 cubes; makes a line with crayon; inserts raisin in bottle
Language:	Jargon;follows simple commands; may name a familiar object (e.g., ball)
Social:	Indicates some desires or needs by pointing; hugs parents
18 MONTHS	
Motor:	Runs stiffly; sits on small chair; walks up stairs with one hand held; explores drawers and wastebaskets
Adaptive:	Makes tower of 4 cubes; imitates scribbling; imitates vertical stroke; dumps raisin from bottle
Language:	**10 words (average); names pictures; identifies one or more parts of body**
Social:	Feeds self; seeks help when in trouble; may complain when wet or soiled; kisses parent with pucker
24 MO	
Motor:	Runs well, walks up and down stairs, one step at a time; opens doors; climbs on furniture; jumps
Adaptive:	Makes tower of 7 cubes (6 at 21 mo); scribbles in circular pattern; imitates horizontal stroke; folds paper once imitatively
Language:	Puts 3 words together (subject, verb, object)
Social:	Handles spoon well; often tells about immediate experiences; helps to undress; listens to stories when shown pictures
30 MO	
Motor:	**Goes up stairs alternating feet**
Adaptive:	Makes tower of 9 cubes; makes vertical and horizontal strokes, but generally will not join them to make cross; imitates circular stroke, forming closed figure
Language:	Refers to self by pronoun "I"; knows full name
Social:	Helps put things away; pretends in play
36 MO	
Motor:	Rides tricycle; stands momentarily on one foot
Adaptive:	Makes tower of 10 cubes; imitates construction of "bridge" of 3 cubes; copies circle; imitates cross
Language:	Knows age and sex; counts 3 objects correctly; repeats 3 numbers or a sentence of 6 syllables
Social:	Plays simple games (in "parallel" with other children); helps in dressing (unbuttons clothing and puts on shoes); washes hands

171. Least common cause of neonatal sepsis in India-
a. klebsiella
b. E.coli
c. Staph aureus
d. Group B streptococcus
Answer is D: group B streptococcus
Reference: http://www.jcnonweb.com/article.asp?issn=2249-4847

- Among Gram-negative isolates, Escherichia coli (20%) was commonest organism isolated followed by Klebsiella spp.(12%), Pseudomonas spp.(10%), Acinetobacter spp (7%), and others(3%).
- While in Gram-positive isolates, Coagulase-negative Staphylococci (CONS) was most common (27%) followed by Staphylococcus aureus (13%) and Enterococci spp. (5%). The antimicrobial sensitivity pattern of various organisms was also studied.

172. Not a feature of Kluver-Bucy syndrome in children
a. Hyper-metamorphosis
b. Hyper-sexuality
c. visual agnosia

d. Seizures
Answer is C: Visual Agnosia
Reference: API

Kluver bucy syndrome indicate the involvement of the medial temporal lobe regions and bilateral lesions of Ammon's horn as a sine qua non for the production of the syndrome.
Involvement of temporal lobes by hydrocephalus in tubercular meningitis and the inflammatory reaction of the brain to the antigen liberated by the degenerating cysticercal cyst may probably explain the clinical features observed in our patients with tuberculous meningitis and NCC. The patient with KBS in association with NCC probably suggests that in certain clinical settings this syndrome can be reversible.

Features of KBS
1. Self stimulation of genitals and hyper-orality) are common to children with severe learning difficulties arising from a variety of causes.
2. Temporal lobe epilepsy and improvement with temporal lobectomy. As many as 71% of the patients with temporal lobe epilepsy exhibit altered sexual behavior associated with ictal events. Inter-ictal hyposexuality occurs in 80% of the patients; 20% exhibit a variety of paraphilias. Perhaps episodes of seizures reflect transient bilateral dysfunction of the temporal lobe. Such temporary functional bilateral lobectomy could cause the same syndrome as an anatomical lobectomy and would be similar to the pathophysiological mechanism, which may account for our patient's behavior.
3. Hypermetamorphosis is exaggerated response to all stimuli present in the visual field.

Carbamazepine and leuprolides have been found to decrease the sexual behavioral abnormality in some individuals with KBS. Other medications such as haloperidol and anti-cholinergics may also be useful in treating behavioral abnormalities associated with KBS

173. Child with croup, well hydrated, feeding well, consolable. T/t is
a) Dexamethasone
b) Racemic epinephrine
c) Antibiotics
d) Nasal washing for influenza and RSV
Ans : A: Dexamethasone
Reference: chapter 382.1 nelson textbook
• The effectiveness of oral corticosteroids in viral croup is well established. Corticosteroids decrease the edema in the laryngeal mucosa through their anti-inflammatory action. Oral steroids are beneficial, even in mild croup, as measured by reduced hospitalization, shorter duration of hospitalization, and reduced need for subsequent interventions such as epinephrine administration. Most studies that demonstrated the efficacy of oral dexamethasone used a single dose of 0.6 mg/kg; a dose as low as 0.15 mg/kg may be just as effective. Intramuscular dexamethasone and nebulized budesonide have an equivalent clinical effect; oral dosing of dexamethasone is as effective as intramuscular administration. The only adverse effect described in the treatment of croup with corticosteroids was the development of Candida albicans laryngotracheitis in a patient who received dexamethasone, 1 mg/kg/24 hr, for 8 days. Corticosteroids should not be administered to children with varicella or tuberculosis (unless the patient is receiving appropriate antituberculosis therapy) because they worsen the clinical course.
• Nebulized racemic epinephrine is an accepted treatment for moderate or severe croup. The mechanism of action is believed to be constriction of the precapillary arterioles through the β-adrenergic receptors, causing fluid resorption from the interstitial space and a decrease in the laryngeal mucosal edema. Traditionally, racemic epinephrine, a 1 : 1 mixture of the d- and l-isomers of epinephrine, has been administered. A dose of 0.25–0.75 mL of 2.25% racemic epinephrine in 3 mL of normal saline can be used as often as every 20 min. Racemic epinephrine was initially chosen over the more active and more readily available l-epinephrine to minimize anticipated cardiovascular side effects such as tachycardia and hypertension. There is

evidence that l-epinephrine (5 mL of 1 : 1,000 solution) is equally effective as racemic epinephrine and does not carry the risk of additional adverse effects. This information is both practical and important, because racemic epinephrine is not available outside the United States.

- The indications for the administration of nebulized epinephrine include moderate to severe stridor at rest, the possible need for intubation, respiratory distress, and hypoxia. The duration of activity of racemic epinephrine is <2 hr. Therefore, observation is mandated. The symptoms of croup may reappear, but racemic epinephrine does not cause rebound worsening of the obstruction. Patients can be safely discharged home after a 2–3 hr period of observation provided they have no stridor at rest; have normal air entry, normal color, and normal level of consciousness; and have received steroids (see later). Nebulized epinephrine should still be used cautiously in patients with tachycardia, heart conditions such as tetralogy of Fallot, or ventricular outlet obstruction because of possible side effects.
- Antibiotics are not indicated in croup. A helium-oxygen mixture (Heliox) may be effective in children with severe croup who may need intubation. Children with croup should be hospitalized for any of the following: progressive stridor, severe stridor at rest, respiratory distress, hypoxia, cyanosis, depressed mental status, poor oral intake, or the need for reliable observation.

174. In a child with rickets with deformity, when should a decision to undertake corrective surgery be undertaken?
a. When vitamin D levels return to normal
b. when growth plate healing is seen radiographically
c. when bone specific alkaline phosphatase is normal
d. when serum calcium is normal.

Answer: C: when bone specific alkaline phosphatise is normal
Reference: Nelson chapter 48 http://emedicine.medscape.com/article/985510

- In nutritional rickets, the phosphorus level rises in 96 hours and radiographic healing is visible in 6-7 days. Neither happens with Familial Hypophosphatemic Rickets. If severe deformities have occurred, orthopedic correction may be required after healing.
- Also lets see the status of serum chemistry values in rickets

Serum calcium	This level is often within the reference range at the time of diagnosis, as a consequence of increased parathyroid hormone secretion. Hence it cannot be used for monitoring response
Serum phosphate	The phosphorus level is invariably low for age, unless recent partial treatment or recent exposure to sunlight has occurred. It rises in 96 hours after treatment but may not rise in resistant rickets.
Serum vitamin D3	Although Calcidiol (25-hydroxy vitamin D) is low and parathyroid hormone is elevated, determining Calcidiol and parathyroid hormone levels is typically not necessary in order to establish a diagnosis. Also remember that values would be normal in resistant rickets and normalcy of values hence would not be indicative of response to treatment.
S.A.P	Alkaline Phosphatase levels are uniformly elevated and indicate metabolic bone disease. Values returning to baseline indicate healing process.

- Treatment for rickets may be administered gradually over several months or in a single-day dose of 15,000 mcg (600,000 U) of vitamin D. If the gradual method is chosen, 125-250 mcg (5000-10,000 U) is given daily for 2-3 months until healing is well established and the alkaline phosphatase concentration is approaching the reference range. Because this method requires daily treatment, success depends on compliance.
- If the vitamin D dose is administered in a single day, it is usually divided into 4 or 6 oral doses. An intramuscular injection is also available. Vitamin D (cholecalciferol) is well stored in the body and is gradually released over many weeks. Because both calcitriol and calcidiol have short half-lives, these agents are unsuitable for treatment, and they bypass the natural physiologic controls of vitamin D synthesis.

• NELSON STATES in chapter 48- Most children have an excellent response to treatment, with radiologic healing occurring within a few months. Laboratory test results should also normalize rapidly. Many of the bone malformations improve dramatically, but children with severe disease may have permanent deformities. Short stature does not resolve in some children. Rarely, patients may benefit from orthopedic intervention for leg deformities, although this is generally not done until the metabolic bone disease has healed, there is clear evidence that the deformity will not self-resolve, and the deformity is causing functional problems.

ANAESTHESIA

175. Correct about hypothermia in anesthesia?

a. Seen in all patients
b. Corrected by warm saline
c. Maximum loss due to conduction
d. Can not be corrected by "bair hugger"

Ans . b) corrected by warm saline

Ref : Lee's synopsis of anesthesia, 12th ed. , pg. 291-93; frca.co.uk/documents/117/perioperative hypothermia,prevention& management

Explanation : A.High risk patients include:

• Children and elderly
• Pre-operative temperature <36□ C
• Combined general and regional anaesthesia
• Major or intermediate surgery
• Prolonged surgery
• Patients at risk of cardiovascular complications
• ASA 3-5 patients

b. Use warmed irrigation fluids. Connect a blood and fluid warmer if large amounts of fluid and blood product use are anticipated.

c. Mechanism of heat loss

Radiation: contributes to most of heat loss - approximately 40% and is proportional to the environment/core temperature difference (to the power of four).

• Convection up to 30% and is due to loss of heat to air immediately surrounding the body. It is proportional to the velocity of the air.
• Conduction: up to 5% and is due to heating surfaces in contact with the body such as theatre table or cold fluids.
• Evaporation contributes to 8-15% and occurs from cleaning fluids, skin, respiratory, bowel and wound surfaces.
• Respiratory 8-10% enhanced by cooling effect of cold anaesthetic gases.

d.Active warming using forced air warmers such as the "Bair hugger", that are devices that blow hot air into a blanket on top of the patient.

176. A patient was posted for laparoscopic surgery, and received iv antibiotic following which the patient become pulseless and unresponsive. Which of the following is the next best step for the patient?

a. Call ambulance
b. Check for breathing
c. Give 2 breaths
d. Cardiac compressions

Ans. d) Cardiac compressions

Ref. 2010 AHA Guidelines for CPR

Exp: The correct sequence of resuscitation is C→A→B. The compressions should be given at rate of 100/min & breaths at 8-10/min., if the patient is already intubated

177. I/V induction agent contraindicated in epilepsy-
a. Propofol
b. Thipentone
c. Ketamine
d. Midazolam
Ans.A) propofol, C)Ketamine
Ref. Hand book of anesthesia & co-existing Disease, Stoelting&dierdorf, 2nd ed. ,pg. 213; Short Textbook of Anesthesia, Ajay Yadav, 2nd ed., pg. 135

Explanation : Both drugs are contraindicated in an epileptic patient, I personally feel that if one option needs to be chosen, it should be ketamine; other drugs that are contraindicated are Enflurane, Atracurium, Methohexitone

178. Lithium potentiates non depolarising muscle relaxants .How many days prior to surgery, lithium should be stopped-
a. 1 day
b. 2 day
c. 3 day
d. 4 day
Ans. b) 2 day
Ref. Lee's synopsis of anesthesia, 12 ed. , pg. 10
Explanation : Lithium should be stopped 2 days before major surgery as it potentiates the non depolarizing group of ms.Relaxants

179. Vasopressor of choice used for t/t of hypotension during anesthesia in aortic stenosis-
a. Dopamine
b. Dobutamine
c. Ephedrine
d. Phenylephrine

Ans. D) Phenylephrine
Ref. Anesthesia & Analgesia Journal,2011, Vol.X,NumberX,Review Article, The Clinical Implications of Isolated Alpha1Adrenergic Stimulation,pg 3
Explanation :Phenylephrine is commonly recommended as the most
appropriate first-line treatment for hypotension in the
patient with aortic stenosis. The rationale is 3-fold: (a) if left ventricular (LV) afterload is relatively fixed by the stenotic valve, increasing peripheral vascular resistance will have less of an effect on myocardial work than it would on an "unloaded" left ventricle; (b) increases in diastolic blood pressure will presumably increase CPP, and thus myocardial DO2
and (c) reflexive bradycardia reduces myocardial consumption of oxygen (VO2).

180. Suxamethonium is used as an intravenous clear aqueous solution. what is its shelf life-
a. 30 min
b. 1 yr
c. 2 yr
d. 3 yr

Ans. B) 1 yr
Ref. mhra.gov.uk/home/groups/l-unit1/documents/websiteresources/con2032933.pdf; Pg 6
Explanation : Finished product stability studies have been conducted in accordance with current guidelines. Based on the results, a shelf-life of 18 months has been set, with the storage conditions "Do not freeze", "Keep container in the outer carton" and "Store in refrigerator (2-8°C)"

181. A 57 yr old male presenting with intracranial surgery .Inhalational agent of choice-
a. Sevoflurane
b. Isoflurane
c. Desflurane
d. Halothane

Ans. b) Isoflurane
Ref. Short Text book of Anesthesia, Ajay Yadav, 2nded. ,pg 62
Explanation: Rise in ICP is minimum with isoflurane among inhalational agents, making it an agent of choice in neurosurgery

182. All of the following statements are correct about the treatment of prolonged suxamethoniumapnoea due to plasma cholinesterase deficiency (after a single dose of suxamethonium) except
a. Reversal with incremental doses of neostigmine
b. Continue anaesthesia and mechanical ventilation till recovery
c. Transfusion of fresh frozen plasma
d. Plasmapheresis
Ans.A) Reversal with incremental doses of neostigmine
Ref : Short text book of anesthesia, Ajay yadav, 2nd Ed. , Pg 87-88
Explanation : Neostigmine trial can worsen the block, it can be given only if the cause of prolonged block-ade is Phase II block (i.e, excessive dose of succinylcholine), still sufficient evidence is lacking
183. True about Celiac block?
a. Block at L3 level
b. Done usually b/l using alchol ,phenol
c. Most common side effect is diarrhea and hypotension
d. Done for lower abdominal malignancies
Answer: (c) Most common side effect is diarrhea and hypotension
Ref: Lee's Synopsis of Anaesthesia, 12 th Ed, Pg : 657-660
Explanation:
common indication: CA PANCREAS
supplies Upper GIT lower esophagus,liver pancreas etc The injection consists of a local anesthetic. On occa-sion, epinephrine, clonidine or a steroid medication may be added to prolong the effects of the celiac plexus block.

ndications
Indicated to control pain of the epigastric viscera, especially due to primary or metastatic upper abdominal cancers.
The most frequent pathology associated with use of this block is pancreatic cancer and associated metastasis. Not frequently used for chronic pancreatitis or to provide anesthesia for intraabdominal surgery.

Drugs utilized
For a sensory block:0.25% Bupivacaine with or without 1:200,000 epi.
For a neurolytic block: 50% - 100% Alcohol diluted with sterile water or local anesthetic. Total volume to be no more than 15-20 ml for each injection. Overfilling the space may cause the alcohol to leak and spread posteriorly, resulting in alcohol neuritis.

The celiac plexus is situated retroperitoneally in the upper abdomen.It is at the level of the T12 and L1 ver-tebrae, anterior to the crura of the diaphragm.It encases the anterolateral surface of the abdominal aorta and the celiac and superior mesenteric arteries.It continues inferiorly as the superior mesenteric plexus and then as the inferior mesenteric plexus.
The vena cava lies anteriorly on the right, the aorta anteriorly on the left.
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RADIOLOGY

184. T.E. E is superior to Transthoracic therapy because:
a. Better evaluates Left ventricular thrombus
b. Left atrial appendage thrombus
c. Thrombus in left ventricle
d. Ventricular structure

Answer: (b) thrombus in atrial appendage.
Reference: (the practice of clinical echocardiography Elsevier)
Explanation:
TTE--u look at the heart from the front of the chest and actually the transducer must pass bones,muscles,lungs so any of these structures can affect the quallity of the image
TEE--u look at the heart from the esophagus which is just in the back of the left atrium so u dont have all those structures in between and plus u see the posterior of the heart much clear compaired to TTE(atrium) It depends on the situation. Atriums and mitral and tricuspide valves are better seen by the TEE.
To detect a thrombus in the left ventricle, both will do. For IE, the sensitivity is around 95% for TEE and 65% for TTE.

185. Which stage of neuro-cysticercosis in CT is not associated with peri-lesionaledema?
a. nodular calcified stage
b. Vesicular stage
c. Colloidalversicular stage
d. Granular modular stage

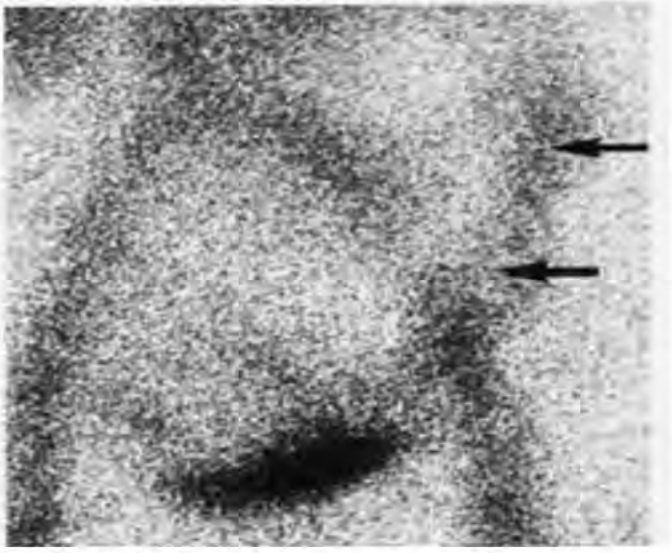
Answer: (b) Vesicular stage
Reference: .(Neurocysticercosis: Radiologic-Pathologic Correlation)
Explanation: Active parenchymal NCC is the most common form of disease. The viable cyst appears as a thin-walled fluid-filled cyst with a mural nodule (live scolex); the cyst causes no inflammatory reaction or edema, and it does not enhance (see the image below). Symptomatic infection develops when the cysticercus loses the ability to control the host's inflammatory and immune responses

186. Tc 99 pertechnate scan produces hot spots in salivary glands. The most probable diagnosis is :
a. Adenolymphoma
b. Warthintumor
c. Adenoid cystic tumor
d. pleomorphic

Answer: warthin or adenolymphoma
Reference: (Textbook of radiology david Sutton, oral medicine ch09)
Explanation:
99mTcO4 - (pertechnetate ion) is distributed like Cl- and is concentrated in the salivary glands. Therefore sodium pertechnetate (Na99mTcO4) is used to ; (a) scan the salivary glands, especially the parotids; and (b) assess salivary gland function. Salivary tumours: All salivary tumours produce a 'cold' spot on 99mTc (technetium) scan except adenolymphoma (Warthin's tumour), which is a form of monomorphic adenoma. The latter takes up more isotope than the rest of the gland to give a 'hot' spot on scan, so that a definite preoperative diagnosis can be made without biopsy.

187. not a radio feature of acute pyeloneph-
a. perinephric edema on ct

b. reduced echogenecity on usg
c. delay in excretion of contrast
d. Autonephrectomy
Answer: (d) Autonephrectomy
Ref: david Sutton vol 2 p944
Explanation : Autonephrectomy or putty kidney is seen in tb.
188. A patient with fever with fast breathing was advised a CXR. The findings revealed a homogenous shadow on right paracardiac margin that was ill defined and produced blurring of paracardiac margins. The diagnosis of the patient is
a. Pleural effusion
b. Pneumonia in apical segment of upper lobe of right lung
c. Pneumonia in middle segment of middle lobe of right lung
d. Pneumonia in anterior segment of lower lobe
Answer: (c) Pneumonia in middle segment of middle lobe of right lung
Reference: Sutton vol 1 p-935 d.
Explanation
Obliteration of these borders may occur with pleural or mediastinal lesions as well as pulmonary pathology. The right middle l obe and lingula lie adjacent to the right and left cardiac borders, the apicoposterior ,segment of the upper lobe lies adjacent to the aortic knuckle, the anterior segment of the right upper lobe and the middle lobe lie against the right aortic border, and the basal segments of the lower lobes lie adjacent to the hemidiaphragms. pulmonary disease in these lobes and segments can obliterate the borders
189. Froating water lily sign on X ray chest
a. Hydatid disease of lung
b. Aspergillosis
c. Tubercular cavity
d. Bronchiectasis
Answer: (a) Hydatid disease of lung
Reference: (david Sutton Vol-2 pg-1072)
190. Which of the following is the incoreect statement regarding GI bleeding
a. The sensitivity of angiography for detecting GI bleeding is about 10-20% as compared to nuclear imaging
b. Angiography can image bleeding at a rate of 0.05/0.1 min or less(it is rate for tc99 rbc scan)
c. 99To –RBC scan image bleeding at rate as low 0.05-0.1 ml/min
d. Angiography will detect bleeding only if extravasation is occurring during the injection of contrast (sumer seth)
Ans: (b) Angiography can image bleeding at a rate of 0.05/0.1 min or less(it is rate for tc99 rbc scan)
Reference: Pg 412 d. sutton



Radionuclide studies are however performed in arterial disease to confirm the diagnosis of an infected surgical graft by using "I In-labelled white cells and to show the site of gastrointestinal bleeding by using 99"Tc-

labelled colloid or red cells (Fig. above).

DERMATOLOGY

191. A 7 year old boy with boggy swelling of the scalp with multiple discharge sinuses with cervical lymphadenopathy with easily pluckable hair. What would be done for diagnosis?

a. KOH mount
b. Pus culture
c. Biopsy
d. patch test

Answer (A) KOH mount

Reference: Roxburgh 17 e p. 41

Exp: Diagnosis is tenia capitis and KOH mount is done for diagnosis.

192. A child has pin head silvery papules on hands, forearms and skin of penis. The diagnosis is

a. Molluscum contagiosum
b. Lichen planus
c. Lichen nitidus
d. Scabies

Answer (c) Lichen nitidus

Reference: Roxburgh 17 e p. 274-278

Exp:

Lichen nitidus most commonly presents as an incidental finding on physical examination or after the patient notices an insidious onset of the lesions.1 It is characteristically asymptomatic.2 Physical examination reveals pinpoint- to pinhead-sized skin-colored papules that may be scaly or have a central depression.3 They usually are found on the forearms, trunk, and the glans and shaft of the penis.

Lichen nitidus can be discrete or generalized. In the discrete form, papules typically do not coalesce; however, they may form or group at sites of trauma or skin pressure (the isomorphic or "Koebner" phenomenon).2 In the generalized (confluent) form, papules coalesce into red-yellow to brown plaques, especially in joint flexures, wrist and forearm ventral surfaces, or inframammary areas, making the clinical diagnosis more challenging.3 Biopsy may be helpful because lichen nitidus has a characteristic histologic appearance.

The etiology of lichen nitidus is unknown, and no laboratory abnormalities or associations with systemic disease have been established. Because lichen nitidus is rare, definitive establishment of the epidemiology is difficult. One study2 of 43 cases demonstrated a male-to-female ratio of almost 4:1, although the generalized (confluent) form may be more common in women.3 No racial predisposition or known genetic inheritance pattern has been noted.1,2 Lichen nitidus primarily affects children and young adults, with a median age of seven years in males and 13 years in females.

193. A 30 yr old man is having multiple ulcers in mouth with epididymitis with complains of blurring of vision. The probable diagnosis is

a. Behcet syndrome
b. Ritter syndrome
c. Xeroderma
d. Oculo cutaneous pemphigus

Answer (A) Behcet syndrome

Reference: Roxburgh 17 e p. 179-180

Explanation: Behcet's syndrome

The manifestations of the syndrome can be broadly divided into the following:

Mucocutaneous: (i) oral aphthous ulceration, present in 98% of patients with similar genital (scrotal/labial) ulceration in 80%; and (ii) skin lesions (acneiform folliculitis, erythema nodosum and occasionally ulceration) and pathergy reaction [8].

Arthritis/arthralgia: in up to 50% of patients, usually non-destructive.

Ophthalmic involvement: panuveitis and retinal vasculitis in 50% of patients.

Systemic vasculitis: thrombophlebitis, arteritis and aneurysm formation.

Additionally, gastrointestinal ulceration, epididymitis, central nervous system lesions and pulmonary lesions may all occur on the basis of the underlying vasculitis

194. Multiple vesicular painful lesions on dermatome T3 are due
a. Herpes simplex
b. Herpes zoster
c. Scabies
d. Dermatitis herpitiformis

Answer (B) Herpes zoster
Reference: Neena khanna 3/e p 72
Herpes zoster
i. vesicles are usually unilateral and limited to dermatomes (M.C. Thoracic)
ii. pain in course of nerve precedes vesicles.
iii. Caused by varicella zoster
iv. One attack gives life long immunity