The ophthalmic division of fifth cranial nerve exits the skull through

A. Superior orbital fissure
B. Foraman ovale
C. Inferior orbital fissure
D. Forman spinosum

Ans A. Superior orbital fissure

The branches of the ophthalmic division of the fifth cranial nerve (Trigeminal nerve) are a large Frontal , a small Lacrimal branch and Nasociliary.

Superior orbital fissure transmits:

- **Lateral part**: Lacrimal, Frontal and trochlear nerve, superior opthalmic vein, meningeal branch of lacrimal artery anastomosing branch of middle meningeal artery.
- **Middle part**: Upper and lower divisions of occulomotor nerve with nasocilary nerve in between, adbucent nerve.
- **Medial part**: Inferior opthalmic vein sympathetic nerves from the plexus around Internal carotid artery.

Foramen ovale transmits Mandibular nerve and accessory meningeal artery

Foramen rotundum transmits Maxillary nerve

Foramen spinosim transmits Middle meningeal artery

2.

Which of the following is not true of occulomotor nerve

a) Enter orbit through the inferior orbital fissure
b) Parasympathetic ganglion placed in course of the occulomotor nerve
c) All the muscles of eye except superior oblique and lateral rectus are supplied by it
d) Causes constriction of pupil

Ans A

Occulomotor enters the orbit through the inferior orbital fissure

- Occulomotor nerve is a motor nerve that originates in the anterior aspect of middle cranial fossa and transverses the lateral part of cavernous sinus divides into superior and inferior division and enters the orbit through superior orbital fissure.

- occulomotor nerve has
  a) Somatic efferent for movements of eye ball.
  b) General visceral efferent (parasympathetic) for contraction of pupil and accommodation.
  c) General somatic afferent for propriocptive impulses from muscles of eye ball.

- All the muscles of facial expression are supplied by facial nerve except for *"levator palpebrae superiors"* which is supplied by occulomotor nerve.

- All the muscles of eye except superior oblique and lateral rectus are supplied by occulomotor nerve . The superior oblique is supplied by 4th cranial or trochlear nerve [SO4] .The lateral rectus is supplied by the 6th or abducent nerve LR6 . The movements of the eyeball is NOT affected in a case of occulomotor nerve palsy is Abduction.

- .Ciliary ganglion is a parasympathetic ganglion present in the course of occulomotor

3.

A typical cervical vertebra is differentiated from thoracic vertebra by

a) shape of the body
b) by the presence of foramen transversarium
c) by the direction of facing of Superior articular facet
d) all of the above

ans B. by the presence of foramen transversarium

CERVICAL VERTEBRA:

i. Identified by the presence of foramen transversarium (transmits vertebral artery vertebral veins and inferior cervical ganglion). It is not seen in thoracic and lumbar vertebrea

ii. There are 7 cervical vertebras, out of which 3 to 6 are typical, while the 1st, 2nd and 7th are atypical.

iii. The anterior tubercle of 6th cervical vertebrae is large and is called the *"carotid tubercle"* because the common carotid artery can be compressed against it.

iv. The "1st cervical vertebra" is called the *'atlas'*. It is ring shaped without body and spine.

v. The '2nd cervical vertebra' is called *"axis"*. It is identified by the presence of *dens* (odontoid process), which is a strong tooth like structure. Its tip is bifid, terminating in two rough tubercles.

vi. The 7th cervical vertebra is also known as the *"vertebra prominens"* because of its long, most prominent spinous prcess.

4.
Which of the following are least involved in the Proprioception of the muscles of head and neck region
a) Facial nerve and trigeminal
b) occulomotor and Trochlear
c) Spinal accessory nerve and vagus nerve
d).facial nerve and glossophrayngeal

ans C.--Spinal accessory nerve and vagus nerve
The spinal accessory nerve is the chief nerve of the sternocleidomastoid and trapezius. Spinal accesory along with vagus supply motor function to palatal, laryngeal, and pharyngeal muscles. proprioceptive supply to these muscles is provided by cervical nerves.
patterns.

A proprioceptor is a sensory nerve ending that is sensitive to changes in the tension of a muscle or tendon. Proprioceptive impulses arise in muscles joints and tendons. They convey information regarding movement and position of the joints and are carried by general somatic afferent fibers.

III Oculomotor--Proprioception from muscles innervated with motor fibers
IV Trochlear--- Proprioception from superior oblique muscle of eyeball
V Trigeminal-- Mandibular nerve-- Proprioception from muscles of mastication
VI Abducens-- Proprioception from lateral rectus muscle of eyeball
VII Facial---, Proprioception from muscles of facial expression
IX Glossopharyngeal-- Proprioception from muscles of pharynx
X Vagus--- Proprioception from visceral muscles
XI Spinal Accessory--- Proprioception from muscles that move head, neck, and shoulders
XII Hypoglossal-- Proprioception from muscles of tongue

PHYSIOLOGY

Which of the following adaptation is well suited to increase the work capacity at high altitude

a) Decreasing workload and increasing duration of exercise
b) Decreasing workload as well as duration of exercise
c) Increase workload as well as duration of exercise
d) Increase workload and decreasing duration of exercise

Ans A: Decreasing workload and increasing duration of exercise

Ref. Guyton's physiology 11th/ 540

.
T he deciding factors for work capacity at high altitude is the amount of oxygen uptake. At high altitude the maximum rate of oxygen uptake is reduced. Work capacity is reduced in direct proportion to the decrease in maximum rate of oxygen uptake
The rate of oxygen uptake is a function of the work load (resistance). Increasing the workload (resistance) will increase the required rate of oxygen which is not available at higher altitudes. Thus a higher working capacity cannot be obtained by increasing the workload. Therefore the work capacity is increased by increasing the duration of exercise

The muscle contraction is initiated by which of the following at synaptic junction

a. release of acetyl choline at presynaptic channels
b. opening of calcium channels at presynaptic chanels
c. opening of calcium channels at post synaptic channel
d. Release of acetyl choline at postsynaptic junction

Ans A
Refer the APPSC 2008 paper I on same topic

Another version of the question is

skeletal muscles

a. Contracts when calcium is taken up by sarcoplasmic reticulum
b. Contracts when actin and myosin filaments shorten
c. Contraction is initiated by calcium binding to troponin
d. Contraction is initiated by calcium binding to tropmyosin

[Ans (a) Ref.Essentials of medical physiology by sembulingam 2nd edi, pg134]

Broca's area is concerned with
a) Word formation
b) Comprehension
c) Repetition

d) Reading

ANS - A (Word formation)
Repeat Aiims may 2008

All of the following statements are true regarding cardiac muscle, except

a) Have multiple nuclei
b) Have gap junction
c) Have branching cell pattern
d) functional syncitium

ans A. Have multiple nuclei
repeat –aiims nov 2008

Each fibers of cardiac muscle is not a Multinucleated Syncytium as in skeletal muscle. but is a chain of cardiac muscle cells (or. cardiac myocvtes). each having its own nucleus

Blood brain barrier is absent in all of the following areas except
a. Subfornical region
b. Habenuclear trigone
c. Area posterma
d. Neurohypophysis

[Ans. (b) Ref. Ganong's medical physiology 22nd edi pg 615]

B-- Habenuclear trigone
Ref': Review of Medical Physiology by Ganong. 22nd/615

As a major regulator of homeostasis, the hypothalamus receives input about the internal environment of the body via signals in the blood. In most of the brain, capillary endothelial cells are connected by tight junctions that prevent substances in the blood from entering the brain. These tight junctions are part of the blood-brain barrier
The blood-brain barrier is missing in several small regions of the brain called circumventricular organs **(CVO)** ., which are adjacent to the fluid-filled ventricular spaces . Several circumventricular organs are in the hypothalamus

Capillaries in these regions, like those in other organs, are fenestrated ("leaky"), allowing the cells of hypothalamic nuclei to sample freely, from moment to moment, the composition of the blood
.

CVO include only the posterior pituitary and median eminence of hypothalamus and adjacent neurohypophysis, organum vasculosum lamina terminalis, subfomical organ and area postrema.

BIOCHEMISTRY

) Which of the following is water soluble vitamin
a) Vitamin A and B
b) Vitamin B and C
c) Vitamin C and D
d) Vitamin D and E

ANS - B (Vitamin B and C)

Water Soluble-- Vitamin B -complex and Vitamin C
.
Fat Soluble-- Vitamin A,~ Vitamin D,~ Vitamin E,~ Vitamin K

5.
.Which of the following enzymes is acid labile (stable at acidic pH)-
a) Pepsin
b) Trypsin
c) Chymotrypsin
d) Carboxypeptidase

ans A --pepsin

All of the following are true of HMP SHUNT except
a) HMP shunt is an alternative pathway for oxidation of glucose that occurs in the cytosol
b) it is chracterised by the absence of production of ATP
c) It is active in adipose tissue, liver and gonads
d) The oxidative phase generates NADPH and the non oxidative phase generates pyruvate

ans D

Ref : Lippincott's illustrated Biochemistry 3rd /153

HMP shunt is an alternative pathway for oxidation of glucose **.HMP (Pentose Phosphate Pathway) shunt is of great importance in cellular metabolism because it produces** NADPH**:** It is an alternative method *for* the metabolism of glucose; does not have any ATP production.

Sites where HMP shunts can occur include Liver, adipose tissue, RBC, WBC Lactating mammary gland , Testes etc ..,. It occurs in the cytosol of the cell

In HMP shunt two transketolation reaction and one transaldolation reaction are involved

Transketolase Step in HMP pathway is dependent on thiamine pyrophosphate (TPP), which is a coenzyme of thiamine. Transketolase levels in blood are useful in monitoring thiamine levels in blood

It has two phases:

a) Oxidative (non-reversible)-generates NADPH *for* lipogenesis or steroid genesis.

b) Nonoxidative (reversible)-provides ribose precursors *for* nucleotide synthesis, RNA and DNA.

. In RBCs it prevents haemolysis by providing NADPH *for* the maintenance of glutathione in the reduced state.

HMP shunt produces two important products i.e., pentoses and NADPH. Pentoses are useful for synthesis of nucleic acids and nucleotides.
NADPH is required for biosynthesis of fatty acids and steroids and is used for synthesis of amino acids involving the enzyme glutamate dehydrogenase. It preserves the integrity of the RBC membrane.

Protein that precipitates on heating to 45°C and redissolves on boiling is

a) Bence jones protein
b) Gamma globulin
c) Albumin
d) Myosin

Bence-Jones proteins are light –bodied globulin chains found in urine of patients with multiple myeloma, It is also seen in polycythemia and leukemia. This protein coagulates when heated at40-80 c and disappears when urine is boiled to 70°C.. When urine sample is allowed to cool they precipitate again

PHARMACOLOGY

Benzodiazepine antagonist?
A. Flumazenil
C. Furazolidone
B. Naloxone
D. Naltrexone
[Ans. (A)]
Repeat M.P-06, AIPG -2009

Drug not used in H. pylori:
A- Metronidazole
B- Omeprezole
C- Mosapride
d- Amoxicillin

Ans: c- Mosapride
Repeat AIPG -2009

Which is a prodrug?
A. Enalapril
C. Salmeterol
B. Clonidine
D. Acetazolamide

Ans A- enalpril
Repeat kar-2006, AP 2006,aipg-2009

Q17) DOPA and 5-Hydroxytryptamine clinically significant because:

a) Both are acid-precursors of amine in the brain
b) both are neuromodulators
c) Are metabolites of amines
d) Both can cross the blood brain barrier easily
ans B-- both are neuromodulators
repeat Aiims nov 2oo8

6.
Which drug is not acetylated?

a- INH
b- Dapsone
c- Hydralazine
d- Metoclopropamide

Ans: d- Metoclopropamide
Repeat aims nov 2008, aipg-2009

Which is not a second generation antihistaminic?
A. Loratidine
B. Acrivastatine

C. Cyclizine
D.Terfenidine

[Ans. (C)] Cyclizine

Repeat, aipg-2009

A child having hemophilia can take all of the following drugs except

a) Gamma amino butyric acid
b) Penicillin
c) Phenobarbitone
d) Aspirin

ans D- Aspirin
Repeat aims may- 2008

All of the following drug is effective in methicillin resistant staphylococcus aureus (MRSA) infection except

a) Cotrimoxazole
b) Vancomycin
c) Ciprofloxacin
d) Cefaclor
ans D -- Cefaclor

Repeat aims nov- 2008

7.
Which of the following Antiepileptics can be given safely in pregnant woman

a) Phenytoin
b) Valproate
c) Carbamazepine
d) Phenobarbitone

ans D-phenobarbitone

Phenobarbitone is considered the drug of choice for epilepsy in pregnant women. All most all antiepileptic drugs cross the placenta and may have teratogenic effects.

.

. Phenytoin produces Fetal Hydantoin Syndrome.

. Carbamazepine and Valproate are said to cause fetal malformation similar to fetal hydantoin syndrome Increased incidence of neural tube defects is associated with carbamazepine and valproate

MICROBIOLOGY

A patient presents with with pustules on hand and back. The bacteriological smear shows positive cocci on smear. Culture shows catalase negative and Beta hemolysis is produced. Which of the following test best identifies the organism as group A streptococci.

(a) Bacitracin sensitivity
(b) Optochin sensitivity
(c) coagulation test.
(d) Bile solubility

Ans A- Bacitracin test

Also refer same type of questions of A.P 2008 , aims may 2008 also

This question can be answered by small logical reasoning . All the options mentioned are gram positive.. so there is no chance of elimination of any of the options
We know that alpha hemoclysis of streptococci produces greenish colonies on agar. We have **Strepto. Varidans group and S. pneumonia now** thus eliminating the Streptococcus. Pyogenes which is beta hemolytic.
Diffefentiation between **Strepto. Varidans group and S. pneumoniea --** Viridans group are not bile soluble and not inhibited by optochin in contrast to s.pneumonea, which is bile soluble. Thus pneumonia can be eliminated
Now we have Streptococcus mitis and.Staphylococcus aureus. and S. mitis is related to the periodontal health and is not been related to any disease where as Staphylococcus aureus is a virulant organism and produces lesions when injected peritoneally .
So the obvious choice is **S. mitis**
*****Staphylococci are catalase positive while Streptococci are catalase negative.

DIFFERENTIAL DIAGNOSIS OF GRAM POSITIVE BACTERIA

- **catalase test** Between streptococci and Straphylocci It is positive for staphylococci. Negative for streptococci

- **Hemolytic test** based on the specific hemolytic ability of streptococci Betahemolytic streptococci completely lyse the RBCs, leaving a **clear zone** of hemolysis around the colony. Alpha-hemolytic streptococci only partially lyse the RBCs, leaving a **greenish** discoloration of the culture medium surrounding the colony. Gamma- hemolytic streptococci are unable to hemolyze the RBCs, and therefore we should really not use the word "hemolytic" in this situation—non hemolytic

- **Streptolysin test** differentiates between alpha hemolytic and Beta hemolytic.Production of streptolysin 'A' and streptolysis "s" by B - Hemolytic bacteria.

- **C- antigen test** To differentiate between lance field and non lancefield (Strepto. Varidans group and S. pneumonia) Presence of carbohydrate indicates **Lancefield Group**

- **Bile test /Optochin sensitivity test /Insulin fermentation test.** Differentiates between the Strepto. Varidans group and S. pneumonia of alpha hemolysis .
  Viridans group are not bile soluble and not inhibited by optochin. S. pneumonea, which is bile soluble and is inhibited by optochin.

  With Insulin Streptococci is non fermenter and pneumococci produces acid fermentation

- **Fermentation of mannitol and sorbital.** To differentiate between Strepto mutans and other oral steptococci .

- **Bacitracin test** Inhibition of bacitracin disk. Identification of group A sptreptococci from other group of streptocooci

- **6.5% Nacl and pencillin G.** To differentiate between (Strep. feacalis) enterococi and non-enterococci (strep. bovis): Enterococci grow in 6.5% Nacl and not killed by pencillin G. Non entero cocci are inhibited by 6.5% Nacl and pencillin G.

- **Coagulation test** To differentiate between staphylococcus aureus and other staphylococci. **Coagulation test**+ve- staphylococcus aureus **Coagulation test** negative -other staphylococcus

Diferentiation between s.viridans and S. pneumonia

	S.viridans	**S. pneumonea**

Bile solubility	insoluble	Soluble
Optochin test	Not sensitive	Sensitive
Insulin fermentation	negative	Ferments with insulin production
Quelling	negative	positive
pathogenecity	Non pathogenic	pathogenic

A person working in a slaugher house developed a small pustule on hand, which turned into an ulcer with central black color. Which of the following can aid in diagnosis

a) Carbol Fuschin
b) Methylene blue
c) niel-janssen stain
d) Acid fast stain
ans B—methylene blue

The symptoms are related to cutaneous anthrax
Ref: Anathnarayanan Textbook of Microbiology 7th ed242, lipponcot illustrated medicalmicrobiology2nd/161; A Manual of Laboratory and Diagnostic Tests By Frances 1st/525

Anthrax is an enzootic disease of worldwide occurrence. [Note: An enzootic disease is endemic to a population of animals (that is, its occurrence changes little over time) Anthrax affects principally domestic herbivores--sheep, goats, and horses--and is transmitted to humans by contact with infected animal products or contaminated dust - Infection is usually initiated by the sub cutaneous inoculation of spores through incidental skin abrasions. Less frequently, the inhalation of spore-laden dust causes a pulmonary form of anthrax. [Note: Sometimes an occupational hazard, this form of pneumonia is known as "wool- sorter's disease."] . Bacillus anthracis spores may remain viable for many years in contaminated pastures, or in bones, wool, hair, hides, or other animal materials

B.anthracis is the first pathogenic bacteria observed under microscope and it is the first bacillus to be isolated in pure culture and first bacterium used for preparation of attenuated vaccine.

Many bacteria secrete a sticky, viscous material that forms an extra cellular coating around the cell. The material is usually a polysac charide, but in the case of pathogenic Bacillus anthracis, is poly-D-glutamic acid.-

ANTRAX is a zoonosis--3 types

1. Cutaneous 2. Pulmonary 3. Intestinal .All types leads to fatal septicemia.

Cutaneous anthrax Follows infection through skin. Leisions are called 'malignant pustule' or black eschar .Disease is common in dock workers carrying loads of hides and skins on bare back. Hence called hide porter's disease.

PULMONARY ANTHRAX:- Wool sorter's disease due to inhalation of dust from infected wool. There is haemorrhagic pneumonia. Haemorrhagic meningitis is a complication

.

Intestinal anthrax is rare. Occurs mainly in primitive communities which uses undercooked meat. Lab diagnosis is by immunofluoroscence

Culture media:- on agar media frosted glass appearance with locks of matted hair called medusa head appearance, on gelatin slab having 'inverted fir tree' appearance when grown on solid media ' strings of pearl reaction'.

.

Lab Diagnosis

The sputum, blood, stools, throat ,vesicular fluid , csf, skin lesions can be used to collect specimen for identification and culture of antrax.

Culture can be made on Mac Conkey agar, Sheep Blood agar (SBA)and phenyl ethyl alcohol plate(PEA)

M-Fayden's reaction:- used for presumptive diagnosis of anthrax in animals Skin vesicular fluid or blood film containing anthrax is mixed with 1% aqueous methylene blue(Polychrome methylene blue) stain for 1 minute showed capsular material characteristic of **M'Fayden's** methylene blue **reaction.** Under the microscope, an amorphous purplish material is noticed around the bacilli. This represents the capsular material and is characteristic of the anthrax bacillus

If the B. antracis is not identified the supportive tests PCR, immunochemistry and serology tests are done. The presence of positive reaction for any two tests confirms the diagnosis of antrax

.

An old diabetic patient present with multiple skin ulcers on the of the leg. Culture shows gram positive cocci in chains and produces clear hemolytic colonies. Which of the following tests will best identify the organism

a) Catalase positive
b) Bacitracin

c) Optochin
d) Bile solubility

ans B- Bacitracin

Again the question paper setter seems to be favouring Group- A streptococci

. Gram positive cocci in chains are streptococci. Clear hemolysis indicated Beta hemolytic streptococci. Majority of beta hemolytic streptococci that cause human infection are Streptococcus Pyogenes(Group A) which can be differentiated from other hemolytic gram positive cocci in chains by bacitracin sensitivity.

22. An 60 years old debilitated male patient presented with fever, malaise, myalgia, anorexia, and/or headache . He has chest pain and dry cough. sputum examination showed growth on charcoal yeast extract medium. The organism is likely

a) Streptococcus pneumoniae
b) Haemophilus influenzae
c) Staphylococci aureus
d) Legionella pneumophila

Ans D- Legionella pneumophila
Ref: Lipponcot illustrated medicalmicrobiology2nd/161

The key words **charcoal yeast extract medium** points towards legionella

Legionellaceae are facultative intracellular parasites that cause primarily respiratory tract infections. Legionella cells are unencapsulated, relatively slender rods . Members of the Legionellaceae family are aerobic and fastidious, and have a particular requirement for L-cysteine. Several dozen species of legionella exist, some with multiple serotypes. *L pneumophila* is the major cause of disease in humans.

Legionellaceae primarily cause respiratory tract infections. There are two distinctly different presentations: Legionnaires' disease and Pontiac fever depending upon the resistance of host

.

Legionnaires' disease (LD): This is an atypical, acute lobar pneumonia with multisystem symptoms. Predisposing factors include immunocompromise immunosuppressive therapy), pulmonary compromise (for exam ple, heavy smoking or

chronic lung disease), consumption of large amounts of alcohol, and debilitation brought on by age or surgery . Early symptoms may be relatively nonspecific: fever, malaise, myalgia, anorexia, and/or headache.. Diarrhea (watery rather than bloody stools) occurs in 25 to 50 percent of cases. Nausea, vomiting, and neurologic symptoms may also occur

.

Pontiac fever: This is an influenza-like illness that characteristically infects otherwise healthy individuals.

Legionellae can be grown on complex media such as buffered charcoal-yeast extract (BCYE) agar with alpha -ketoglutarate, at pH 6.9, temperature 35 °C, and 90% humidity. Antibiotics can be added to make the medium selective for legionella. A biphasic BCYE medium can be used for blood cultures.

All of the are true about vibrio cholera except

a) It is non halophilic motile vibrio
b) Grows on simple standard media media
c) Man is the only natural host
d) Cannot survive in extracellur environment

ans D
Ref: Lipponcot illustrated medicalmicrobiology2nd/186

Vibriocholera is non invasive extracellular

The halophiles demand extremely high salt concentrations for growth. The common test which identifies the species of vibrios is growth in 0% (wt/Vol) NaCl.

Classification of vibrios based upon salt tolerance

Non Halophillic Vibrios—that can grow at 0% (wt/Vol) NaCl.	**Halophillic Vibrios** --Vibrios that do not grow on media without added salt. They require Na+(10% NaCl) for growth and starvation survival.
. V.Chlorea . V.mimicus V. fluviallis V.furnissi.	V.parahaemophillus . V.alginolyticus . V.vulnificus .V. anguillarum

.

Members of the genus Vibrio are short, curved, rod-shaped organisms. Vibrios are closely related to the family Enterobacteriaceae They are rapidly motile by means of a single polar flagellum .Vibrios are facultative anaerobes . The growth of many Vibrio strains either requires or is stimulated by NaCI

.

Pathogenic vibrios include:

1) V. cholerae, serogroup O1 strains that are associated with epidemic cholera (V. cholerae:classic)

2) non-O1 V. cholerae (El Tor strain) and related strains that cause sporadic cases of cholera-like and other illnesses In contrast to the classic strain, the is distinguished by the production of hemolysins, higher carriage rates, and the ability to survive in water for longer period

3) V. para- haemolyticus and other halophilic vibrios, which cause gastroenteritis and extraintestinal infections.

V. cholerae is transmitted by contaminated water and food. There are no known animal reservoirs, nor animal or arthropod vectors. Among humans, long-term carriage is considered uncommon

. V. cholerae grows on standard media such as blood and MacConkey agars. Thiosulfate-citrate-bile salts-sucrose (TCBS) medium can enhance isolation. The organism is oxidase-positive, but further biochemical testing is necessary for specific identification of V. cholerae.

Cholera is not an invasive infection. The organisms do not reach the bloodstream but remain within the intestinal tract. Virulent *V cholerae* organisms attach to the microvilli of the brush border of epithelial cells. There they multiply and liberate cholera toxin and perhaps mucinases and endotoxin . Thus extracellular environment forms the natural habitat for vibrio cholerea.

Which of the following contains mostly obligate anaerobe species

a) Pseudomonas'
b) Staphylococcus
c) Streptococcus
d) Bacteriodes

ans D Bacteriodes

Biological monitors for checking the efficacy of sterilization is checked by

A. using spore formers
B. using non pathogenic virus
C. using yeasts
D. all of the above

ans A

Sterilizers need to be checked to ensure that they are adequately sterilizing instruments. There are two types of monitors.

1. Process indicators show that sufficient temperature was reached in that load. Often a color change strip or sections of autoclave bag. Does not show sterilization,. Only presence of high temperature for period of time.

2.Biological Monitors Spore strips of spore-forming Bacillus spare loaded with instrument load. Spores are cultured following autoclaving cycle. Negative culture is expected. Usually a "test strip" is autoclaved while a "control strip" is not (to show viability of spores). **Bacillus steorothermophilus** spores are used for testing the efficiency of sterilization by autoclaving. This is a harmless bacteria.

+++Spores of **Clostridium tetani** and **Bacillus subtilis** are used for testing the efficiency of dryheat.

PATHOLOGY

Earliest transient change following tissue injury is

A. Neutropenia.
B. Neutrophilia.
C. Monocytosis.
D. Lymphocytosis.
Ans B
Repeat; Aiims, may/nov 2008
-

The general anesthetic with antiemetic property

A.diazepam
B.propofol

C.Promethazine
D.Fentanyl

Ans B

Repeat like from aims nov 2008

- Propofol has rapid post anaesthetic recovery with complete clear headedness .
- It lacks airway irrtancy and is particulary suited for outpatient surgery
- It possesses very strong antiemetic and antipruritic action . It is an oil based preparation, therefore injection is painful

.

- Its onset of action is within 15 seconds and last for 5-10 min (due to redistribution).

- It decreases blood pressure 'and impairs baroreceptor reflexes

.

- produces more severe and prolonged respiratory depression than thiopentone.

- . It has no muscle relaxant property.
- . It has cerebroprotective activity but does not possess anticonvulsant activity. Rather, myoclonic jerking and muscle twitching can be seen with the use of propofol.

- It is intravenous anaesthetic of choice for day care surgery.

- . It is also the intravenous anaesthetic of choice for sedation in I .C.U

.

- . Propofol is the intravenous anaesthetic of choice in the patients with malignant hyperthermia.

Which of the following is not a contraindication of Centrineural anesthesia is

a) Patient on aspirin therapy
b) Reduced cadiac output

c) Patient on oral anticoagulant therapy
d) Raised intracranial pressure

ref : Anaesthesia for Medical Students by Pat Sullivan 1st/121
ans A- Patient on aspirin therapy

Central neural blockade or **Centrineural anesthesia** refers to either epidural or spinal anaesthesia.. Epidural anaesthesia involves injecting drugs into the epidural space, which lies between the ligamentum flavum and the dura mater, exterior to the spinal fluid. Spinal anaesthesia involves passing a needle through the epidural space, through the dura and into the CSF intrathecal) space

Contraindications

- Patient refusal and Uncooperative patient
- Marked skin infections
- Lack of resuscitative equipment
- Lack of knowledge of procedure
- Coagulopathy --Marked coagulopathy, blood dyscariasis or full anticoagulant therapy
- Previous back surgery--- Patients inability to maintain stillness during the needle puncture
- marked spinal deformity
- Severe hypovolumia
- Raised intracranial pressure
- Patients with platelets < 80000/ml
- Pre-existing neurologic disease--- ALS, Multiple sclerosis
- Fixed cardiac output: severe aortic or mitral stenosis, IHSS

,DENTAL MATERIALS

Air abrasive technique the abrasive particles used are

a) .50 micrometer aluminium oxide.
b) 27 micrometer aluminium oxide.
c) 30 microns calcium carbonate
d) . 50. micrometer iron oxide\

***Ref :Dental Clinics** of **North America**, Volume 46, Issue 2, April 2002, Pages 185-209*
J. Tim Rainey

Micro air abrasion works by delivering a stream of microscopic aluminum oxide abrasives through a tiny nozzle under air pressure remove enamel, dentin, and restorative materials. (The standard 27-microns abrasive is three-fourths the size of a human hair.)

The use of air abrasion in microdentistry techniques has led to the identification of a previously unreported structure in mandibular molars best described as a subocclusal oblique transverse ridge. This structure, dubbed the ‘‘Rainey Ridge’’ after its discoverer, is part of an occlusal web of enamel that is also apparent in the maxillary molars.
A salient feature of the ridge, because it underlies the anatomic landmark commonly referred to as the central ‘‘fossa,’’ is its interconnection of the distolingual cusp and the mesiobuccal cusp
The subocclusal oblique transverse ridge (Fig. 1) is part of a coronal web of interconnected enamel that is defined and separated by fissures. When maintained intact, the web system contributes to the structural integrity of posterior teeth

Advantages

- The cutting speed is comparable to that of rotary instruments, but the heat, pressure, vibration, and noise are eliminated, making most preparations possible without the use of an anesthetic
- potential for tooth chipping and fractures is minimized.

.

ORAL PATHOLOGY --

Which of the following cysts is involved with non-vital teeth?

a) Naso-alveolar .cyst
b) Lateral periodontal cyst
c) Radicular cyst
d) Stafne's bone cyst

Ans C- radicular cyst

Fordyce spots are(AIIMS 90, AIPG 92)

a) Fat tissues embedded in buccal mucosa b) Red spots
c) Present on cheek mucosa lateral to the angle of mouth d) All of the above
[**c**]

Fordyce’s granules are seen on lip & buccal mucosa. It consists of

A) Ectopic Sebaceous glands
B) Ectopic Sweat glands
C) Mucous glands
D) Epithelium remnants

Ans A-) Ectopic Sebaceous glands
Fordyce's granules are a developmental anomaly characterized by heterotopic collections of sebaceous glands at various sites in the oral cavity. Fordyce's granules appear yellow spots most frequently in a bilaterally symmetrical pattern on the mucosa of the cheeks opposite the molar teeth but also occur on the inner surfaces of the lips, in the retromolar region lateral to anterior faucial pillar, and occasionally on the tongue,

gingival, frenum and palate
.

]

Pindborg tumor arise from
a) cells rests of molassez
b) cell rests of serrea
c) Dental Lamina
d) Stratum Intermedium

ans D-- Stratum Intermedium
) Ref Neville 2nd edpage623/ Shafer's 5th ed-pg394
The calcifying epithelial odontogenic tumor is a locally aggressive neoplasm, which is also known as Pinborg's tumor (named after Prof JJ Pindborg who first reported it). The lesion arises from either the cells of the stratum intermedium or the reduced enamel epithelium. The tumors is characterized by the presence of Leisngang rings and driven snow" radiological feature. Liesegang rings are formed by amyloid like material composed of Conventional amyloid or immunamyloid or APUDamyloid

Which of the following is not a skin disease
a) Psoriasis
b) Erythema Multiforme
c) Erythema migrans
d) Pytriasis Rosea

ans C—erythema migrans

A negative histopathology report of a highly suspicious oral lesion suggest?

a) No malignant potential of the lesion
b) Lesion should be stained with toludine blue like stains
c) Periodical recalls are necessary to assess the nature of the lesion
d) That another biopsy is ncccssary in view of the clinical impression

[**D**]

ans --D

One should give priority to the clinical impression. Investigations usually assist the physician to come to the definite diagnosis. A repeat biopsy should always be performed when there is any doubt about the adequacy or representative nature of the original specimen.

Which of the following is unlikely to cause enamel hypoplasia

a) Rickets
b) Fluoride
c) Congenital syphilis
d) Cleidocranial dysostosis

[**D**]

repeat AIIMS 96

Tuberculous lymphadenitis of submaxillary and cervical lymph nodes is seen in

a) Scrofula
b) Miliary TB
c) Lupus vulgaris
d) Lues

ans A

Tuberculosis of lymph nodes and overlying skin is called scrofula

The perception of a taste with Complete loss of all taste stimuli

a) Ageusia
b) Hypogeusia
c) Dysgeusia
d) Torqugesia

ans A

Ageusia: Complete loss of all taste stimuli

. **Hypogeusia**: Impairment of the sense of taste or decreased sensitivity for all taste stimuli

Dysgeusia or parageusia: A distortion or perversion in the perception of a taste

Phantogeusia or gustatory hallucination: perception of a taste in the absence of any recognised taste stimulus

Cacogeusia - bad taste

Torquegeusia - twisted taste

. **Hypergeusia**: Increased sensitivity for all taste stimuli, some or a single stimulus

. **Gustatory agnosia:** Loss of the ability to classify, contrast or identify a given taste stimulus verbally,

Glossodynia - painful tongue

Glossopyroses - painful pyrosis

Taste index substances

Taste perception	Substance used as reference (index=1)	Threshhold for stimulation
bitter	quinine	0.000008 M
Sweet	sucrose	0.1M
Salt	Na Cl	0.1M
sour	HCl acid	0.0009 M

Advanced basal cell carcinoma frequently

a)metastasis by way of Arteries
b) spreads by Lymphatics
c) spreads by Nerve sheaths
d) Direct extension and invasion

ans D.

Anitschkow cells are present in all of the following except

a) Apthous ulcer.
b) Sickle cell disease.
c) Iron deficiency anemia
d) Herpes simplex

Ans D.

Anitschkow cells (caterpillar cells) are *modified epithelial cells with elongated nuclei and linear bar of chromatin with radiating process of chromatin* extending towards nuclear membrane. They coalesce to form Aschoff giant cells. They are present in Recurrent Apthous stomatitis, sickle cell anaemia Iron deficiency anaemia, Megalablastic anaemia, Children receiving chemotheropy for cancer.

While using the Radio visiography, the best method of infection control for receptors is

a) Autoclave the receptors after each use
b) immerse the receptors in disinfectant
c) wipe the sensor with 5.25% hypochlorite solution
d) cover with impervious plastic sheath

Ref : Infection Control & Occupational Safety Recommendations for Oral Health Professionals
in India 2007 by anil kohli 1st/124.

The digital sensors and receptors are semicritical instruments. The digital receptor is used in the patient's oral cavity needs to be sheathed with a plastic sheath extending at least 5 inches outside the patient's mouth. The sheath needs to be changed between patients and the digital receptor and only needs to be wiped with a disinfectant wipe if contaminated

Do not immerse Digital Receptors (ones with electronic leads) in disinfectant as the leaching of liquids
may short the circuits in the receptor. Digital Sensors (that do not have leads) may be immersed in a
disinfectant per manufacturer's recommendation.

Difference between Digital and conventional radiography is that in Digital radiography

A. X-rays are not used
B. Hard copy can not be obtained
C. No radiation hazard to the patient
D. There is different radiation receptor

Ans D—
Repeat aims nov 2009

Investigation of choice for a bony lesion in temporal bone is
a) pluridirectional tomography
b) CT scan
c) MRI scan
d) Ultra Sono Graphy

Head and Neck Imaging by Peter M. Som —4th/1093

CT scan is best for bony lesions and MRI for soft tissue imaging.
with the introduction of multidetector spiral CT scanners, an entire volume of the temporal bone is examined with one pass of the scanner in one plane . One must use both computed

tomography (CT) and magnetic resonance (MR) imaging techniques of the highest possible resolution to precisely characterize the bone, air spaces, and the wide
variety of soft tissues present in the temporal bone region
.
Although the wide differences in the density of the temporal bone structures produce excellent inherent image contrast on CT, soft-tissue
characterization is much more limited than with MR
imaging.

. In contrast, MR imaging provides poor information about the air spaces and cortical bone but excellent soft-tissue contrast resolution.

In addition, MR is more sensitive to the effects of gadolinium as a
contrast agent than is CT to iodinated contrast agents

The extra oral radiograph that best demonstrates the subcondylar portion

[C]

A. AP mandible
B. Water's view
C. reverse Towne's view
D. Submental vertex

Ans 'C'

Reverse towne's view	The canthomeatal line is oriented 25 -30° downward	The central ray is directed towards the occipital bone	• Best for viewing condylar neck fractures • The condyles are better viewed if the patient opens the mouth widely.

- **Medially displaced condylar neck fracture is best visualised in** PA view
- Cornoid process of mandible can be best viewed on **PA view of skull**
- Fractures of ramus and body of mandible can be best seen in **Lateral oblique 15°**

- Horizontal unfavourable or favourable fractures of mandible can be viewed best in Lateral oblique 30 degrees
- Trans cranial view (TMJ view) is useful for demonstrating the vertical displacement of the condylar fractures

Best radiographic film to detect incipient caries is

a. speed E film
b. speed D film
c. speed F film
d. speed C film

Answer is c.

Repeat kar-2008 also

Though early cavitated approximal lesions can be better visualized and detected in speed D film, it is recommended to use speed E and speed F film for incipient caries detection for the advantage is that the by speed films the patients are exposed to less ionizing radiation.

A significant difference in diagnostic accuracy for both incipient and manifest caries was not found between Ektaspeed (speed E) and Ultraspeed (speed F)

Radiographs of traumatised tooth is <u>mainly</u> necessary

a) To assess stage of root development
b) To rule out root fractures
c) To have a base line comparison with future radiograph
d) To rule out hylanisation of pulp

ans C

Radiographs of traumatised tooth is <u>mainly</u> necessary to have a base line comparison with future radiograph

See the question pattern. If the word " mainly" is stressed, then it is used for base line comparison

If the question is generally asked and if the the option " all of the above " is given , it is the best option.

[ ]

window like bone defect which do not involve marginal bone which are usually covered by periosteum and gingival are called

a) Dehiscence
b) Crater
c) Fenestration
d) Trough

ans C—fenestration.

The best indication for bone fill procedures(osseous grafts for bone regeneration)

a) One walled infra bony pockets
b) One walled supra bony pockets
c) Two walled infra bony pockets
d) Three walled infra bony pockets
[ ]

d) Three walled infra bony pockets

Repeat: ((AIPG 89**(AP 95, PGI 96)**)

Which of the following is untrue of LJP

a) more common in females
b) mirror image type of bone loss is seen bilaterally
c) Amount of bone destruction is proportional to the amount of plaque
d) aggressive periodontal bone destruction compared to normal periodontitis

ans C

amount of bone destruction is far advanced then the inflammatory changes caused by deposition of plaque. The amount of bone destruction far exceeds the amount of plaque deposition

Teeth least effected by periodontitis

a) Upper and lower first molar
b) upper and Lower incisors
c) Lower first molars and upper premolars
d) Upper canines and lower premolars

ans D-- Upper canines and lower premolars

Teeth least effected by periodontitis is upper canine and lower second premolar. Most effected are lower molars.

Mobility of teeth is measured by using

a) Periodontometer
b) Periotron
c) Spechtometer

d) Densitometer

Ans 'A'.

Mobility of teeth is measured (quantitatively assessed) by using **Periodontometer**. It is devised by Muhlemann
PERIOTEST is used for detecting tooth mobility

The microorganism not associated with periodontitis lesion is

a) Campylobacter rectus
b) Prevotella intermedia
c) Actinomyces viscosus
d)Actinobacillus actinomycetemcomitans

Ans is C Actinomyces viscosus

Which of the following cells are consistent with immunoglobulin levels in established gingivitis

A. Plasma cells
B. Neutrophils
C. Mast cells
D. Lymphocytes
E.

[A] Plasma cells

Most periodontal damage occurs in the following conditions

a. intrusion
b. extrusion
c. infarction
d. luxation

ans D. lateral luxation

Most periodontal damage occurs due to stretching and teraing of fibres in lateral luxation.
Most pulpal damage occurs due tointrusion as a result of injury to neurovascular bundle at the entry of apical foramen

specificity of a test is its ability to identify [D]

A. True negative
B. False positive
C. False negative
D. True positive

Ans 'A'

The negative predictive value of a screening test depends on specificity of the test.
The positive predictive value of a screening test depends on sensitivity of the test.

Which of the following vaccine is not included in EPI (expanded programme of immunization)schedule

a) OPV
b) BCG
c) MMR
d) DPT

ans C. MMR

closest answer seems to be MMR(mumps, measles and rubella) vaccine

WHO --Expanded programme of immunization targets protection of all children of the world against the six vaccine preventable diseases namely diphtheria, whooping cough, tetanus, polio, tuberculosis and measles.

Protection against mumps and rubella is not included
and the recommended vaccine against measles is the measles vaccine and not the MMR

All of the following are transmitted by lice except
a) Trench fever
b) Epidemic typhus
c) Relapsing fever
d) Q fever

ans D- Q fever
Ref : SPM by Parke -19th/ 622.

ARTHROPOD BORNE DISEASES

Lice.-- Trench fever, Relapsing fever and Epidemic Typhus
soft ticks-- Q fever is transmitted to extrahuman hosts (cattle, sheep, poultry). They dodont transmit infection to human beings

I. Mosquito
(l) **Anopheles** ----Malaria

(2) **Culex** ---Japanese encephalitis, West Nilefever, Bancraftian filariasis, Viral arthritis
(3) **Aedes** ----Yellow fever,Dengue,Dengue hemorrhagic fever, Chikungunya fever, Rift valleyfever

(4) **Mansonoides----** Brugian filariasis, Kala Azar, Oriental sore, Orayafever, Standfly fever

Tse tse fly—sleeping sickness
Louse—epidemic typhus, relapsing fever, trench fever, pediculosis
Rat flee—bubonic plague
Trombiculid mite—scrub typhus
Itch mite--scabies
Reduviid bug—chagas disease

Chronic carrier state is not a feature of which of the following diseases (another version of the question **is which of the following does'nt has heriditical (chronic carrier state??)occurance**

a) Measles
b) Dipthria
c) Tuberculosis
d) hepatitis B

ansA
Ref" Park Social and Preventive Medicine 19th ed. Page 127, 90,136.
A chronic carrier is one who excreates the infections agent for indefinite period. Carrier are not known to occur in measles.

Which of the following is a contains highest amount of poly unsaturated fatty acids(PUFA)

A. Palm oil.
B. soya bean oil
e. Ground nut oil.
D. Olive oil.
Ans B--- soyabean oil

See the questions relating to this in AIIMs may 2008

Oils	Saturated fatty acids	Polyunsaturated fatty acids (PUFA)
Coconut oil	90	2
Palm oil	46	10
Groundnut oil	19	31
Safflower oil	10	75
Sunflower seed oil	8	65
Corn oil	8	65
Soya bean oil	14	64
Butter	60.	3
Margarine	25	50
Flak seed oil (linen seed)	8.5	72
Mustard oil	12	21
Canola oil (refined mustard oil)		
Olive oil	15	8
sesame	17	40
Rice bran oil	25	32
Vanaspathi --dalda	45	1.7
Ghee	60	10

In the lactobacillus count is 9500 , the reading will be inferred as

a) Little or none
b) Slight
c) Moderate
d) Marked

Ans C-moderate

No of organism/c.c.	Symbolic designation	Degree of caries activity
0 – 1000	±	Little or none
1000 – 5000	+	Slight
5000 – 10000	++	Moderate
More than 10000	+++	Marked

Which of the following is not present in carislov

a. leucine
b. glutamic acid
c. glycine
d. lysine

ans C-
carisolv doesnot contain glycine

see also PGI june 2007 paper

Ledermix paste contains

a) Minocycline
b) Oxytetracycline
c) Demeclocycline
d) Doxycycline

Ans C. demeclocycline

Demeclocycline is also called as ledermycin

LEDERMIX is an active compound is highly effective anti-inflammatory cortisone
derivative (triamcinolone acetonide) combined with a broad-range antibiotic. (demethylchlortetracyline).

Therapeutical uses : Rapid relief of pain associated with acute pulpal and periodontal inflammations.

Composition
Triamcinolone acetonide 10.0mg (1%)
Demeclocycline calcium 30.20 mg (3.2 %)

Others :Triethanolamine, Calcium chloride, zinc oxide, macrogol 3000, Macrogol 400, sodium sulphite anhydrous, sodium calcium Edetate, colloidal silicon Dioxide and Purified water.

Chlorohexidine is least effective against

a) Candida
b) Streptococcus mutans
c) Enterobacter
d) E. fecalis

Ans C-enterobacter ??

pharmacology by Katzung 9 th/1160

Chlorhexidine is a cationic biguanide with very low water solubility. It is active against bacteria and mycobacteria and has moderate activity against fungi and viruses. I**t is most effective against gram-positive cocci and less active against gram-positive and gram-negative rods**.

Of the given options enterobacter species are gram negative rods. The streptocci and entercoccus are gram positive cocci and hence the chlorhexidine may be active against them

Which of the following lasers is a WATERLASE system of Laser

a) YAG
b) Neon
c) YSGG
d) Argon

Ref : Endodontics by Amit Garg -1st/199; ingle endodontics 6th/html ed, chapter 26E

Weichman JA, Johnson FM first introduced the LASER applications in endodontics in 1971. (** Richmann introduced ultrasonics to endodontics)

Different types of lasers used in dentistry, such as carbon dioxide (CO_2), erbium (Er), and neodymium (Nd), and various other substances used in the medium [e.g., yttrium, aluminum, garnet (YAG) and yttrium, scandium, gallium, garnet (YSGG)], and argon, diode, and excimer types, all produce light of a specific wave length.

- The CO_2, the Er:YAG, the Er, Cr:YSGG, and the Nd:YAG lasers emit invisible beams in the infrared range (10.6µm, 2.94 µm, 2.79 µm, and 1.06 µm, respectively).
- The Argon laser emits a visible light beam at 488 or 514 nm
- The excimer lasers emit invisible ultraviolet light beams at various predetermined wavelengths (ArF, 193 nm; KrF, 248 nm; and XeCl, -308 nm).

. The CO_2 laser is highly absorbed by all biological soft and hard tissues and thus is most effective in tissues with high water content, such as the soft tissues of the oral cavity. However, its high thermal absorption makes this laser unsuitable for drilling and cutting enamel and dentin as damage to the dental pulp may occur.

The Er:YAG laser is the most efficient for drilling and cutting enamel and dentin as its energy is well absorbed by water as well as by hydroxyapatite.

Argon lasers are more effective on pigmented or highly vascular tissues

Nd:YAG laser photons are transmitted through tissues by water and interact well with dark pigmented tissue.

The excimer lasers generate light in the ultraviolet range of the electromagnetic spectrum and function by breaking molecular bonds and reducing the tissue to its atomic constituents before their energy is dissipated as heat.

Unlike the CO_2 and the Er:YAG lasers, the Nd:YAG, argon, and excimer laser beams can be delivered through fiber optic, allowing greater accessibility to different areas and structures in the oral cavity.

The clinician controls four parameters when operating the laser: (1) the level of applied power (power density), (2) the total energy delivered over a given surface area (energy density), (3) the rate and duration of the exposure (pulse repetition), and (4) the mode of energy delivery to the target tissue (i.e., continuous versus pulsed energy and direct contact or no contact with the target tissue).

Four basic types of laser interactions occur when light hits the target tissue: reflection, scattering, transmission, and absorption.

In various laser systems used in dentistry, the emitted energy can be delivered into the root canal system by a either thin optical fiber (Nd:YAG, KTP-Nd:YAG, Er;YSGG, argon, and diode) or by a hollow tube (CO_2 and Er:YAG)

RC lase :The beam of the Er:YAG laser is delivered through a hollow tube, with an endodontic tip that allows lateral emission of the irradiation (side-firing), rather than direct emission through a single opening at its far end. This new endodontic side-firing spiral tip was designed to fit the shape and the volume of root canals prepared by Ni-Ti rotary instrumentation. It emits the Er:YAG laser irradiation laterally to the walls of the root canal through a spiral slit located all along the tip. The tip is sealed at its far end, preventing the transmission of irradiation to and through the apical foramen of the tooth

Recently a new root canal treatment using the Er, Cr:YSGG (erbium, chromium: yettruim scandium gallium) is developed. The device which produces is the **WATERLASE**—hydrokinetic hard and soft tissue laser, the only laser which has got approval from FDA for endodontic treatment. By using hydrokinetic process in which water is energized by the YSGG laser photons to cause molecular excitation and localized microexpansion , hard tissue are removed precisely with no thermal side effects.

Which of the following teeth are most effected in a child of five years of age if put on vigorous tetracycline therapy for one year duration

a) All primary teeth and first molars
b) only permanent first molars
c) permanent premolars and 2nd molars
d) permanent incisors and canines

ans C
permanent premolars and 2nd molars are most effected and permanent incisors and canines are also effected to certain extent.
Shaffer oral pathology 5th/778
Also refer BHU-2009 ,and kar-2009 paper

Moffitt and his coworkers have emphasized that the critical period for tetracycline-induced discoloration in the deciduous dentition (the period of mineralization of the first millimeter of dentin nearest the dentino enameljunction).

Age of administration	**Teeth effected**
four months *in utero* to three months postpartum	maxillary and mandibular primary incisors.
five months *in utero* to nine months postpartum	maxillary and mandibular primary canines
three to five months postpartum to about seven years of age.	permanent maxillary and mandibular incisors, permanent first molar.
5 to 6 years	Canines , premolars and 2nd molar
After seven years	None

.

Which of the following is a space maintainer?

a) Pendulum appliance
b) Willets appliance
c) Twin block
d) Tip edge

ans B- willet's appliance

willets appliance is also called as " distal shoe appliance**"**

Catalan's appliance is used

a. space maintenance
b. correction of anterior crossbite
c. growth modulation of class II skeletal conditions
d. all of the above

ans B. correction of anterior cross bite

Lower inclined plane for correction of anterior cross bite is called **catalans appliance**

77. Serial extraction is contra indicated in all of the following except
A) impactions and anodontia
B) openbite and spaced dentition
C) Class II and class III skeletal pattern
D) flaring and crowding of the lower teeth

Ans D--Serial extraction is indicated in crowding of lower anteriorsin mixed dentition

The most common site of leak in CSF rhinorrhoea is into

a.. Sphenoid sinus
b. .Frontal sinus
c..etmoidal sinus
d. .maxillary sinus

ansC

A slight modification of the old stock queston. CSF rhinorrhoea is commonly seen in nasoehtmoidal fractures involving cibriform plate.

Tertiary monoblock is used in

a) Orthograde MT A system
b) Acti V GP
c) Resilion monoblock obturation
d) Hydron

The recent modification of MTA used as a root canal irrigant is

A.MTA-A
B.MTA-B
C.MTA-C
D.MTA-D

[Ans. (D-- MTA-D
Ref. endodontics by Cohen 9th/258, netsources]
Repeat pgi-nov 2006, pgi dec 2008)

MTA was introduced in the early 1990's as an experimental material developed by Dr. Mahmoud Torabinejad at Loma Linda University, USA.

MTAD- Is a recently introduced irrigation solution. It is a mixture of Doxycycline, an acid (citric acid) and a detergent. In-vitro experiments indicates that MTAD has potential for removal of smear layer and highly effective in killing E.fecalis.

MTA-A(Angelius) is used as sealer and not irrigant. Original MTA is proroot . MTA – A is commonly used sealer. Where as recent modification to MTA which is used as intracanal irrigant is MTA-D. please correct this in our PGI nov –2006 q.no.24. (eighth ed)

Which of the following is a Tertiary monoblock system

a) Orthograde MT A system
b) Hydron
c) Resilion monoblock obturation
d) Acti V GP

Ans D-

Ref ; Ingle endodontics 6th ed/ HTML pages. and "Monoblocks in root canals - a hypothetical or a tangible goal "byFranklin and Pashley J Endod. 2007 April; 33(4): 391–398

The term monoblock, literally meaning a single unit. (for example in orthodontics, the 'Monobloc' refers to the famous Activator in 1902 by Dr. Pierre Robin by uniting upper and lower acrylic removable appliances.). Like wise the term "monoblock" has become a familiar term in the endodontic literature with recent interest in the application of dentin adhesive technology to endodontics.
With the advent of dentin bonding systems and the bondable materials achieve mechanically homogeneous units that interlock with root dentin are developed. Thus a "monoblock" consisting of a resin sealer with resin tags that enter into and bond to dentinal tubules, and to the dentin on the canal wall, as well as adhesively bonding to the core material, and which can also be light cured and sealed coronally as well

The materials that constitute a monoblock should have the ability to bond strongly and mutually to one another, as well as to the substrate(dentin) with which the monoblock is intended to reinforce. Second, these materials should have moduli of elasticity that are similar to the substrate.

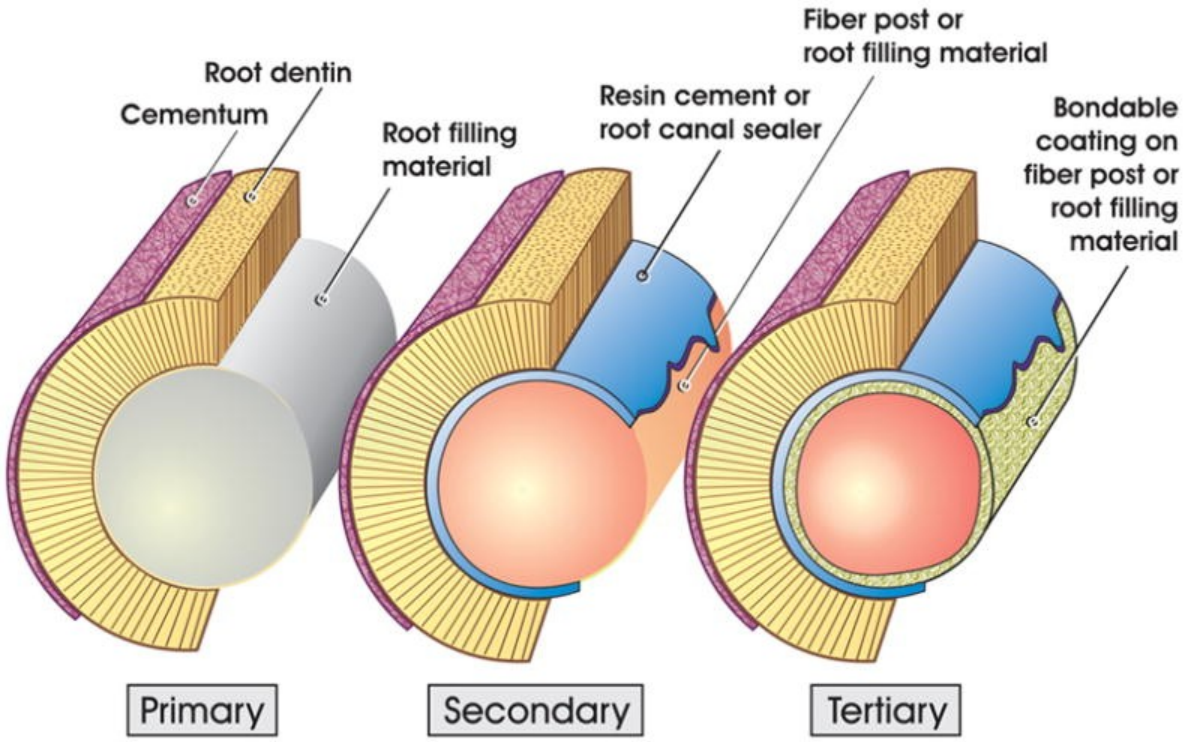
Replacement monoblocks created in the root canal spaces may be classified as primary, secondary and tertiary depending on the number of interfaces present between the bonding substrate and the bulk material core.

Name	Description	Advantages	Disadvantages
Primary mono block			
1. **Hydron**	HEMA based **is an injectable root canal filling material. It** was injected into root canals to be polymerized in-situ, often in the presence of residual moisture within the root canals	• sets in presence of moisture	extensive leakages porous in nature • The moduli of elasticity of from 180–250 MPa . In order to reinforce roots, the modulus of elasticity of a root filling material would need to approximate that of dentin (i.e. 14,000 MPa). This it is not stiff enough to support root dentin
2.	Portland cement with	• Helps in	• Cannot bond directly to

Orthograde MTA	the addition of bismuth trioxide to render it radiopaque.M in	cementogenesis aterial of choice apexification	dentin. Interaction of the released calcium and hydroxyl ions of MTA with a phosphate-containing synthetic body fluid results in the formation of apatite-like interfacial deposits •
Secondary monoblock			
Resilon Realseal	is a polycaprolactone-based, dimethacrylates resin containing thermoplastic composite that contains radio-opaque fillers as well as glass-ionomer filler particles . Resilon is applied using a methacrylate-based sealer to self-etching primer treated root dentin	is the only bondable root filling material that may be used for either lateral or warm vertical compaction techniques Advantages of Resilon compared to conventional GP Cone is better in resisting bacterial leakage and improving the	The extremely high C-factor in root canals has been cited as a possibility for not achieving perfect seals in Resilon-filled root canals (c factor is around 1000 in root canals) Resilon is not stiff(85-125 MPa) enough to achieve a mechanically homogeneous unit with root dentin(16,000–18,000 MPa.)

		fracture resistance of endodontically treated teeth.	
Tertiary monoblock			
1. Endorez	conventional gutta-percha cones are coated with a proprietary resin coating producing a gutta-percha resin coating that is bondable to a hydrophilic, methacrylate-based dual-cured resin sealer	no dentin adhesive is employed and the generation of an endodontic seal is dependent on the penetration of the hydrophilic sealer into the dentinal tubules and lateral canals following removal of the smear layer.	
2. **Acti V GP**	conventional gutta-percha cones that are surface-coated with glass ionomer fillers	a stiffer gutta-percha cone is achieved that transforms it into a gutta-percha core/cone. The presence of the glass-ionomer filler-coated gutta-percha cone also allows it to be bonded to the root dentin via a glass-ionomer sealer The system produced apical seals to fluid filtration that are	ActiV GP demonstrated more severe bacterial leakage compared with gutta-percha/AH Plus. ActiV GP system will not significantly improve the fracture resistance of endodontically treated teeth

		comparable to that of gutta-percha and AH Plus sealer	



CLASSIFICATION OF ENDODONTIC MONOBLOCKS

I. In a primary monoblock, has only one interface that extends circumferentially between the material and the root canal wall
Example **Hydron**(that contains HEMA and **MTA; ProRoot MTA**

The compressive strength of MTA increases upto 15000-30000 MPa depending upon water content and further increases on further aging. However it does not increase fracture resistance of root dentin and this inability of MTA to strengthen roots is despite high compressive strength is probably a combination of its lack of bonding to dentin, and that although it has high stiffness in compression, it has little strength in tension.

.II. **secondary monoblock**, The combined use of a core material and a cement/sealer in contemporary endodontic obturations and fiber post adhesion introduces additional interfaces into a monoblock. There are two interfaces, one between the fiber post/ and the cement/root canal sealer, and the other between the cement/root canal sealer and the root dentin. A secondary monoblock is the type of monoblock that is classically perceived in the restorative and endodontic literature. Classical conventional obturation techniques are secondary monoblocks

Resilon (. Resilon is applied using a methacrylate-based sealer to self-etching primer treated root dentin. Based on these promising properties, Resilon, together with the **Epiphany primer** and sealer system was subsequently referred to as the Resilon Monoblock System (RMS) that produces ideal root obturations in terms of coronal sealing and fracture resistance.

. Polymerization shrinkage stress that occurs can be high enough to debond adhesive interfaces. The stress increases as the volume to surface area ratio increases. Thus, the configuration of the cavity or "C-factor" is very important. In a box-like class I cavity, there are five bonded cavity walls and only one (i.e. occlusal) unbonded "wall" where polymerization stress can be relieved by resin flow. Such a cavity has a C-factor or 5/1 or 5. In root canals, C-factors can be over 1000). The extremely high C-factor in root canals has been cited as a possibility for not achieving perfect seals in Resilon-filled root canals

III. Tertiary monoblock, a third interface is created when a bondable coating is present on the surface of the fiber post/root filling material. The fibre posts contain either an external silicate coating, or contain unpolymerized resin composite(Anatomic Post) These are used for relining root canals that are too wide or not perfectly round for the fitting of conventional fiber posts. An additional circumferential interface is introduced by coating the non-bondable gutta-percha points with materials that render them bondable to the root canal sealers .As the tertiary interface exists as an external coating on the surface of the gutta-percha, both systems are designed to be used with either a single-cone technique or a technique that involves the passive placement of accessory cones without lateral compaction, to avoid disruption of these external coatings. Examples **EndoRez system** and **Acti V GP**

. Which of the following is a UDMA based sealer

a) Real seal
b) Endorez
c) AH 26

d) SEALAPEX

Ans B. endorez

Also remember endorez cones are tertiary monoblock cones

I. Resin Sealers

1. AH 26 is a bisphenol epoxy resin sealer that uses hexamethylenetetramine (methenamine) for polymerization. The methenamine will give off some formaldehyde as it sets, and this has been one of its major drawbacks. .Other disadvantages are staining and an extended working time. On the other hand, AH 26 does not seem to be affected by moisture, and will even set under water.

2. AH Plus and ThermaSeal Plus (were formulated with a mixture of amines that would allow for polymerization without the unwanted formation of formaldehyde but with all the advantages of AH 26, such as increased radiopacity, low solubility, slight shrinkage, and tissue compatibility. AH Plus is an epoxy-bis-phenol resin that also contains adamantine. AH Plus comes as a two-paste system, unlike the liquid-powder system of AH 26. AH Plus has a working time of 4 hours and a setting time of 8 hours. Other improvements over the older AH 26 formulation are the thinner film thickness and the decreased solubility of AH Plus, both about half that of AH 26. AH Plus has been shown to be less cytotoxic than AH 26, but both caused a dose-dependent increase in genotoxicity.

3. Epiphany) or **Real-Seal** (Sybron Endo) is a sealer that contains urethane dimethacrylate (UDMA), Poly(ethylene glycol) dimethacrylates (PEGDMA), ethoxylated bisphenol A-dimethacrylate (EBPADMA), Bisphenol-A-glycidyl-dimethacrylate (BisGMA) resins designed for use with the polycaprolactone core materials. Additionally, these sealers contain silane-treated barium borosilicate glass, barium sulfate, silica, calcium hydroxide, bismuth oxychloride with amines, peroxide, a photo inhibitor, and pigments. Epiphany sealer is a dual-cure dental resin composite sealer that self-cures in about 25 minutes. It comes with a self-etch primer with sulfonic acid-terminated functional monomer, Hydro-xyethylmethacrylate (HEMA), water, and polymerization initiator. **Sodium hypochlorite may negatively affect bond strength of the primer, so after using sodium hypochlorite for irrigation, one should irrigate with ethylenediaminetetraacetic acid (EDTA) and sterile water**. **Peroxide-containing lubricants might also have a retarding effect on the resins, so a final rinse with EDTA and sterile water is recommended after using these lubricants**. Chlorhexidine does not affect the bond strength. When obturation is completed, the coronal surface may be light-cured for 40 seconds to create a coronal seal.

4. Diaket is a polyketone compound containing vinyl polymers mixed with zinc oxide and bismuth phosphate. Diaket is a sealer that sets by chelation, but it contains polyvinyl

chloride in polymer form as a main ingredient. It has a liquid component of B-diketone. It is a tacky material that contracts upon setting, but this is offset by its absorption of water

III. Silicone-Based Sealers

1.Lee Endo-Fill) is an example of a silicone-based root canal sealer.

2. RoekoSeal is a polyvinylsiloxane that is a white paste-like sealer. RoekoSeal is reported to polymerize without shrinkage and utilizes platinum as a catalyzing agent.

3. GuttaFlow (Roeko/Coltene/Whaledent) is a polyvinylsiloxane with finely milled gutta-percha particles added to the RoekoSeal sealer. GuttaFlow also contains silicone oil, paraffin oil, platin catalyst, zirconium dioxide, nano-silver as a preservative, and a coloring agent. It is eugenol free. It is a cold flowable gutta-percha filling system for the obturation of root canals. GuttaFlow is triturated in its cannula and passively injected into the canal and then used with single or multiple gutta-percha points.

IV. Urethane Methacrylate Sealers

1. EndoRez (Ultradent, South Jordon, UT) is a hydrophilic UDMA resin sealer that reportedly has good canal wetting and flow into dentinal tubules The hydrophilic property improves its sealing abilities, if some moisture is still in the canal at obturation.[101] EndoRez is introduced into the canal with a narrow 30-gauge Navitip needle (Ultradent). A single gutta-percha point technique or the lateral compaction obturation technique may be used.

2. EZ Fill is a noneugenol epoxy resin sealer that is placed with a bidirectional spiral, rotating in a hand-piece, and used with a single gutta-percha point technique. It is reportedly nonshrinking on setting and is hydrophobic in nature, making it resistant to fluid degradation.

3. MetaSEAL is a thinner version of 4-META . MetaSEAL's self-etching formula hybridizes the canal wall preventing leakage and bonds to gutta-percha and Resilon

V. Solvent-Based Sealers

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Chlororosin lateral condensation uses 5% to 8% rosin in chloroform, which leaves a very adhesive residue.

Chloropercha is white gutta-percha with chloroform and has no adhesive properties.

Kloropercha N-O contains additional resin, plus Canada balsam, that adds adhesive property to the material.

There is more shrinkage with the chloroform solvent techniques, and this often translates into leakage, with the material pulling away from the canal walls as it shrinks creating voids through which leakage may occur

VI. Paraformaldehyde-Containing Sealers (Riebler's)

Paraformaldehyde Pastes may also be considered as sealers.. The addition of paraformaldehyde is for its antimicrobial and mummifying effects, but unfortunately its severe toxicity to host tissues outweighs any antimicrobial effects it may possess as an ingredient in endodontic materials .The American Dental Association (ADA) Council of Dental Therapeutics does not approve the use of paraformaldehyde pastes or sealers.

.1. ***N2*** (Sargenti's) ***paste*** (Indrag-Agsa, Losone, Switzerland) and its US counterpart, RC2B, is a liquid and powder paste. The liquid contains zinc oxide, bismuth nitrate, bismuth carbonate, paraformaldehyde, and titanium oxide. The liquid consists of eugenol, peanut oil, and rose oil..

2. Endomethasone) is a liquid-powder sealer used in Europe. The powder contains dexamethasone, hydrocortisone acetate, thymol iodide, paraformaldehyde, and a radiopaque excipient, whereas the liquid contains eugenol, peppermint oil, and Anise oil. The difference between Endomethasone and other paraformaldehyde-containing sealers is the addition of the hydrocortisone. The toxicity of the paraformaldehyde still remains.

3. ***Riebler's paste*** () is another paraformaldehyde-containing paste

AH Plus sealer showed the highest bond strength in smear layer-free surfaces, and had the strongest bond to dentin with the smear layer intact compared to Diaket and epiphany.

Epiphany showed biological compataibility in regard to bone formation, and it also produced either no, or very slight inflammation as compared to endorez and AH26

Epiphany with gutta-percha had significantly greater bond strength than any the other groups.

Eugenol based cements : KERR cement, GROSSMANN cement (PULP CANAL SEALER) , ROTH cemnt , TUBLISEAL , WACH,S cement, N0GENOL (non eugenol cement).

Calcium hydroxide sealer

CRCS (calciobiotic root canal sealer), **, LIFE, APEXIT** , sealapex

Temporary cements:-
1.Cavit it is a moisture-initiated, autopolymerizing premixed calcium sulfate polyvinyl chloride acetate cement The ingredients in Cavit are zinc oxide, calcium sulfate, zinc sulfate, glycoacetate, polyvinyl-acetate resin, polyvinylchloride-acetate, triethanolamine, and red pigment.[272] The calcium sulfate is hydrophilic and causes hydroscopic expansion of Cavit. This absorption of moisture and subsequent expansion cause Cavit to seal very well as it sets in a moist environment.

2. IRM IRM is a ZOE cement reinforced by a polymethylemethacrylate resin,

3. TERM TERM is a light-cure composite (urethane dimethacrylatepolymer resin).

Medicative cements:- Endomethasone paste contains corticosteroids

In fracture through mental foramen in mandible with less than 10mm of bone loss treatment would be,

a..Champy's plate.
b..Lag screw
c..Non rigid fixation
d..Reconstruction plates.

Ans D. reconstruction plates

In the above question there is bone loss of 10mm and the fracture line is passing through mental foramen. To prevent damage to nerve instead of two plates a load bearing reconstruction plate is given.

The most simplistic way to discuss fixation schemes for fractures are to divide them into

- Load-Bearing versus which bear the original load
- Load-Sharing Fixation that share the loads with the bone on each side of the fracture

Load-bearing fixation is a device that is of sufficient strength and rigidity that it can bear the entire load applied to the mandible during functional activities. Injuries that require load-bearing fixation are comminuted fractures of the mandible, those fractures where there is very little bony interface because of **atrophy**, or those injuries that have resulted in **a loss of a portion of the mandible** (defect fractures). Load bearing fixation is sometimes called **bridging fixation** because it bridges areas of comminution or bone

loss. Such plates are relatively large, thick, and stiff. They use screws that are generally greater than 2.0 mm in diameter (most commonly 2.3 mm, 2.4 mm, or 2.7 mm). When secured to the fragments on each side of the injured area by a minimum of three bone screws, reconstruction bone plates can provide temporary stability to the bone fragments.

Load-sharing fixation is any form of internal fixation that is of insufficient stability to bear all of the functional loads applied across the fracture by the masticatory system. Such a fixation device(s) requires solid bony fragments on each side of the fracture that can bear some of the functional loads. Fractures that can be stabilized adequately with load-sharing fixation devices are simple linear fractures, and constitute the majority of mandibular fractures. Fixation devices that are considered load-sharing include the variety of 2.0 mm **miniplating systems, Lag screw techniques** etc..,. However Simple linear fractures can also be treated by load-bearing fixation but reverse is not true..

-

For the majority of fractures in the dentulous mandibular body and symphysis there is sufficient height of bone to place one load-sharing plate along the inferior and one along the superior aspect of the lateral cortex. Because fixation devices are applied to the lateral surface of the mandible, the ability to use two-point fixation requires that there be sufficient height of bone so that the fixation devices can be placed far apart from one another. For instance, an atrophic mandibular fracture, where there is a vertical height of only 15 mm, would not gain much mechanical advantage from placing two bone plates on the lateral surface . In such instances Use of a single strong bone plate (reconstruction plate) is recommended when the vertical height of the mandible is small

-

.

Which of the following are most complicated fractures.

a. Symphysis
b) Body
c) Condyle
d) Angle

ans A

Condylar fractures are the most complicated fractures because they can effect growth of the fcial structures and because of their close approximity to brain structures.

.

A transverse fracture of symphysis is treated by all of the following except

a. Two Compression plates. (2mm)
b. Two lag screws
3.single Miniplate fixation (1.5mm)
4.2.4 mm reconstruction plate.

Ans C.
single mini plate fixation cannot support the dynamics of fracture at symphysis region

Symphyseal fractures had negative bending moments only that caused compression at the alveolar side and tension at the lower border of the mandible and relatively high torsion moments. Compressive strain develops along the buccal aspect, whereas tensile strain develops along the lingual aspect. This produces a fracture that begins in the lingual region and spreads toward the buccal aspect. The anterior mandible undergoes shearing and torsional (twisting) forces during functional activities. Application of fixation devices must therefore take these factors into consideration. This is why most surgeons advocate two points of fixation in the symphysis: either two bone plates, two lag screws, or possibly one plate or lag screw combined with an arch bar.
Depending on the size of the plate and whether or not an arch bar will also be used to provide another point of fixation, the fixation could be rigid or functionally stable

Fixation schemes for mandibular symphyseal fracture.

A large compression plate in combination with an arch bar for a symphysis fracture (two-point fixation).

Two lag screws inserted across a symphysis fracture (two-point fixation).

Two bone plates for a symphysis fracture (two-point fixation). These may or may not be compression plates. Typically the larger one at the inferior border is a compression plate and the one located more superiorly may or may not.

.
Symphysis fracture with either two 2.0 mm miniplates, or a stronger bone plate at the inferior border, as well as using the arch bar as another point of fixation

.
Number of bones osteotised in Le - fort I osteotomy essentially are

a.2.
b.3.
c.4.
d.5

After carefully going through the literature and consultation with the oral surgeons.

We came to conclusion that the answer is four .

Osteotomies of Classical le fort I is done in maxilla only (one bone). However that option is not given.

The osteotomies given are

- Anterior buccal and posterior buccal osteotomies on each side. The two are joined at the Butress region. A vertical bypass is given at the zygomatic buttress region.
- The posterior osteotomies that separate the pterygoid plate from the maxillary tuberosity
- The lateral nasal osteotomies
- The medial nasal osteotomy that separates the septa and vomer bone from maxilla

The bones separated are

- Maxilla and Nasal Septum (Vomer bone)
- Maxilla and Pterygoid plates(sphenoid bone)
- Maxilla and Palatine bone.(horizontal process of the palatine)
- Maxilla and Zygomatic bone

Now the maxilla is down fractured. If any resistance is encountered the horizontal plate of palate is trimmed. The ptreygoid plates and the vomer are also trimmed. Thus in essential four bones are osteomised. They are maxilla, palatine, pterygoid plates (Sphenoid plates) and vomer..
Though the zygomatic buttress is osteomised it does not come under zygoma. Zygomatic buttress is a part of maxillary bone itself.

Which of the following chracterises Implant placement for overdentures in anterior maxilla

a) Two implants placed anterior to sinus in canine and premolar area on each side
b) Four implants placed in incisor region
c) Two implants placed in central incisor region
d) It is better to avoid implants anterior to sinus in overdenture construction

Ans A.

Ref: reference for the oral surgery questions is from petterssen principles of oral sugery

Placement of Four Implants into the Anterior Maxilla. For the patient with adequate anterior vertical bone height, and for whom a treatment plan has been made for anterior implants for overdenture support, four implants can be placed

It is recommended to place at least four implants for a tissue supported overdenture in the maxilla

. Four implants in the anterior maxilla are used to support a rigid bar, often combined with vertical stress-broken attachments placed at the distal aspects.

Implants for overdentures are typically placed with their centers slightly palatal to the crest to avoid dehiscence and thin bone over the facial aspect of the implants

. The incisive canal should be avoided as a site for implant placement

.

Specifically, implants for overdentures are placed in the canine and premolar locations dependent on the availability of bone

An implant can be placed in the lateral incisor position if necessary. However, implants

placed in the central incisor locations complicate the prosthetic rehabilitation since the presence of the abutments and a bar near the midline may result in excessive palatal bulk in the denture, which may be bothersome to the patient.

Which part of the cental nervous system is mainly is infested by neuro cysticercosis.

a) cranial nerves
b) neurons
c) Brain parenchyma
d) Spinal cord

ans C- brain parenchyma

The complex host–parasite relationship in cysticercosis is poorly understood. The sequence of events corresponding to the stage of the parasite in the brain begins when the hexacanth embryo (oncosphere) is passively carried by the systemic circulation to the brain parenchyma, where it differentiates into a larva1–1.5 cm in diameter within 2 months. Either it may cause cyst formation or granulamatous changes and ultimate scar formation