

- Number of official languages included in the VIIIth schedule of the Indian Constitution: (a) 20 (b) 22 (c) 21 (d) 18
- Who raised the slogan 'No caste, No religion, No God for man'? (a) Sree Narayana Guru (b) Chattampi Swamikal (c) Sahodaran Ayyappan (d) Ayyankali
- Which of the following publication was known as the 'bible of the socially depressed classes'? (a) Al-Ameen (b) Vivekodayam (c) Kesari (d) Mithavadi
- The first Christian missionary group arrived in Kerala: (a) Jesuits (b) CMS (c) Salvation Army (d) Basel Evangelical Mission
- The oldest existing Malayalam newspaper: (a) Mathrubhumi (b) Malayala Manorama (c) Kerala Kaumudi (d) Deepika
- The ruler who made Temple entry proclamation in Travancore in 1936: (a) Sri Moolam Thirunal (b) Aayilyam Thirunal (c) Sree Chithira Thirunal (d) Sethu Lakshmi Bhai
- The leader of Guruvayur Satyagraha was: (a) K. Kelappan (b) T.K. Madhavan (c) C. Kesavan (d) Mannath Padmanabhan
- Which of the following Country decided to quit the European Union in the last year? (a) Germany (b) France (c) Italy (d) England
- The winner of Australian Open Tennis men's singles title - 2017: (a) Rafael Nadal (b) Roger Federer (c) Andy Murray (d) Novak Djokovic
- Which woman freedom fighter was described by Gandhiji as 'The Jhansi Rani of Travancore'? (a) Rosamma Punnose (b) Akkamma Cheriyan (c) Annie Mascarene (d) A.V. Kuttimalu Amma
- The motion of an iron ball falling down under the action of gravity near the surface of the earth is: (a) uniform velocity (b) uniform acceleration (c) non-uniform acceleration (d) uniform retardation
- Two object are said to have perfectly elastic collision when, before and after collision, their: (a) momentum and kinetic energy are conserved (b) momentum is conserved and kinetic energy is not conserved (c) momentum is not conserved and kinetic energy is conserved (d) momentum and kinetic energy are not conserved
- The process involved in the sudden bursting of cycle tyre is: (a) isochoric process (b) isothermal process (c) adiabatic process (d) isobaric process
- The temperature at which the reading on the Celsius scale of temperature and Fahrenheit scale of temperature becomes equal: (a) -30 degree (b) -20 degree (c) -50 degree (d) -40 degree
- Fundamental equation that relates fluid pressure, fluid velocity and fluid height is: (a) Equation of continuity (b) Bernoulli's theorem (c) Stoke's law (d) Archimede's principle
- The resistance of a conductor depends on: (a) length of the conductor (b) area of cross-section of the conductor (c) material of the conductor (d) all of the above
- The vibrant colours seen on the surface of thin oil films on the surface of water is due to: (a) interference of light (b) refraction of light (c) dispersion of light (d) scattering of light
- An example of universal gate is: (a) NOT gate (b) AND gate (c) OR gate (d) NOR gate
- The increasing order of frequency of electromagnetic wave is: (a) X-ray, gamma ray, radio wave, micro wave (b) gamma ray, radio wave, X-ray, micro wave (c) radio wave, micro wave, X-ray, gamma ray (d) micro wave, gamma ray, radio wave, X-ray
- When a double convex lens with refractive index 1.5, is immersed in a solution of Carbon disulphide with refractive index 1.62, the focal length of this lens becomes? (a) more positive (b) negative (c) zero (d) infinite
- Albumin, Globulin and Fibrinogen are: (a) Intestinal enzymes (b) Plasma Proteins (c) Carbohydrates (d) Pituitary hormones
- Select the parts of nephron from the following: (a) Henle's loop and Bowman's capsule (b) Axon and Dendron (c) Actin filament and myosin filament (d) Collagen and Elastin
- "Crossing over" during meiosis leads to: (a) Gene migration (b) Translation (c) Transcription (d) Gene recombination
- Find out the character of mammals from the following: (a) Poikilo thermous (b) Pneumatic bone (c) Hairy Exoskeleton (d) Water vascular system
- Which of the following is a Protozoan disease? (a) Typhoid fever (b) Pneumonia (c) Malaria (d) Common Cold
- Hormones show "Antagonistic effects" are: (a) Adrenalin and Nor adrenalin (b) Insulin and Glucagon (c) Calcitonin and Thyroxin (d) Oxytocin and Vasopressin
- Who proposed the double helical structural model to DNA? (a) Sutton and Boveri (b) Hershey and Chase (c) T.H. Morgan (d) James Watson and Francis Crick
- Azotobacter and Azospirillum are: (a) Bio fertilizers (b) Bio control agents (c) Source of narcotic drugs (d) Plant Pathogens
- Select the method of Exitu conservation of Biodiversity from the following: (a) Sacred groves (b) National park (c) Zoological park (d) Biosphere reserve
- Peptide bond is found in (a) Protein (b) Glycogen (c) Starch (d) Nucleic acids
- Number of electrons present in 1 mol H₂O is: (a) 6.022×10^{23} (b) $18 \times 6.022 \times 10^{23}$ (c) 6.022×10^{24} (d) 18
- pH of .1 Molar NaOH solution assuming complete ionization is: (a) 1 (b) 13 (c) 14 (d) None
- Duma's method is used for estimation of: (a) Nitrogen (b) Sulphur (c) Halogen (d) Phosphorous
- Which of the following is an intensive property? (a) Mass (b) Volume (c) Density (d) Heat Capacity
- The rate constant of a reaction is $2.5 \times 10^{-4} \text{S}^{-1}$. The order of the reaction is: (a) 1 (b) 0 (c) 2 (d) 3
- Number of electrons possible in a quantum level with $l=2$: (a) 2 (b) 4 (c) 8 (d) 10
- Which of the following is a tribasic acid? (a) H₃PO₄ (b) H₃PO₃ (c) H₃PO₂ (d) All
- Shape of XeF₂ molecule is: (a) See Saw (b) Linear (c) Square planar (d) Octahedral
- Which of the following compounds will not undergo looform test? (a) Ethanol (b) Ethanal (c) Propanone (d) Propanal
- Which of the following is not a nucleophile? (a) NH₃ (b) H₂O (c) BF₃ (d) OH⁻
- The three steps of urine formation are: (a) Glomerular filtration, diffusion, ultrafiltration (b) Filtration, reabsorption, ultrafiltration (c) Filtration, reabsorption, secretion

- (d) clearance, glomerular filtration, ultrafiltration
42. What is the normal adult glomerular filtration rate?
 (a) 99 ml/hr
 (b) 2000 ml/day
 (c) 80 ml/hr
 (d) 125 ml/min
43. All of the following are functions of the kidney EXCEPT:
 (a) Regulation of acid base balance
 (b) Maintenance of fluid balance
 (c) Elimination of metabolic waste
 (d) Release of aldosterone
44. Diffusion is the movement of:
 (a) Solute from an area of high concentration to an area of low concentration
 (b) Solute from an area of low concentration to an area of high concentration
 (c) Solvent from an area of low concentration to an area of high concentration
 (d) Solvent from an area of high concentration to an area of low concentration
45. An elevated serum potassium is when the level is above:
 (a) 2.5 mEq/L
 (b) 4.0 mEq/L
 (c) 2.0 mEq/L
 (d) 5.5 mEq/L
46. Acidosis is defined when pH falls below:
 (a) Less than 7.35
 (b) Less than 7.45
 (c) Less than 7.55
 (d) Less than 8.0
47. Primary cause of anemia in CKD is:
 (a) Erythropoietin deficiency
 (b) Iron deficiency
 (c) Blood loss
 (d) Folate deficiency
48. The list below indicates reasons for malnutrition in chronic renal failure. Of these which one is considered to be the major cause of malnutrition?
 (a) Metabolic derangements
 (b) Dialysis associated catabolism
 (c) Uremic toxins
 (d) Decreased nutrient intake
49. In hemodialysis the removal of urea from the patient is Primarily due to the existence of:
 (a) Osmotic pressure
 (b) Hydrostatic pressure
 (c) Electrical gradient
 (d) Concentration gradient
50. The optimum value for the dialysis solution flow rate is... times the blood flow rate.
 (a) 1.0 - 1.5 (b) 2.0 - 2.5
 (c) 1.5 - 2.0 (d) 2.5 - 3.0
51. The first two hemodialysis treatments, for a patient with an extremely elevated BUN, are (purposely) less efficient to primarily prevent which complication?
 (a) Rapid decrease in hematocrit
 (b) Dialysis disequilibrium syndrome
 (c) Cardiac arrhythmias
 (d) Excessive anticoagulation
52. Transmembrane pressure consists of which of the following pressure gradients on each side of the dialysis membrane?
 (a) Positive pressure on the blood side
 (b) Negative pressure on the blood side
 (c) Positive pressure on the dialysate side
 (d) Negative pressure on the dialysate side
 (a) (d) only
 (b) (b) and (d) only
 (c) (b) and (c) only
 (d) (a) and (d) only
53. To maintain an optimum gradient between blood and dialysate across the dialyzer membrane which type of blood to dialysate flow is used?
 (a) Co-current flow
 (b) Cross-current flow
 (c) Counter-current flow
 (d) Parallel flow
54. The potential for an air embolism to occur during hemodialysis is great. However, the technology today makes it a rare occurrence. What possible reason could there be for this to really happen to your patient?
 (a) Disconnected venous needle
 (b) Disconnected arterial line
 (c) Malfunctioning air detector
 (d) Saline bag for infusion depleted
55. The dialysis machine assures the dialysate entering the dialyzer is safe for the patient's treatment. What does it do to assure this?
 (a) Regulates the temperature, conductivity, pH, measures pressure and flow, detects a blood leak
 (b) Alerts the user if something is wrong
 (c) Bypasses the dialyzer if dialysate is not safe
 (d) All of the above
56. The movement of water from an area of lower solute concentration to an area of higher solute concentration is called:
 (a) Diffusion (b) Osmosis
 (c) Ultrafiltration (d) Dialysis
57. The volume of plasma cleared of a given substance per unit of time is the definition of:
 (a) Clearance (b) Dialysis
 (c) Dialysance (d) Net flux
58. What are the factors to consider when establishing a dry weight for the patient?
 (a) Blood pressure
 (b) Patient well being
 (c) Evidence of dehydration or overload
 (d) All of the above
59. The process by which a large volume of fluid is removed at a rapid rate, with little or no solute removal except by convection is called:
 (a) Osmosis
 (b) Hemodialysis
 (c) Ultrafiltration
 (d) Isolated or pure ultrafiltration
60. The primary purpose of the proportional pump in a dialysate delivery system is to:
 (a) Prepare the dialysate in proper pH
 (b) Prepare the dialysate in proper temperature
 (c) Prepare the dialysate in proper water to concentrate ratio
 (d) Deliver the concentrate at the proper rate
61. Why is the hemodialysis patient discouraged from eating heavy meals before or during dialysis?
 (a) May cause hyperkalemia post dialysis
 (b) Can contribute to vomiting during dialysis
 (c) May contribute to hypotension
 (d) All of the above
62. Urea clearance is enhanced by:
 (a) High blood flow rate and high dialysate flow rate
 (b) Co-current flow
 (c) A small dialyzer
 (d) Osmotic pressure gradient
63. What is the national standard for hemodialysis prescription (weekly KT/V) to minimize morbidity/mortality rates?
 (a) > 0.8 (b) > 0.4 (c) > 1.0 (d) > 1.2
64. The regular use of a high sodium dialysate bath may predispose the patient to:
 (a) Fluid overload
 (b) Hypertension
 (c) Thirst
 (d) All of the above
65. Kolff developed the:
 (a) First disposable dialyzer
 (b) First plate dialyzer
 (c) Scribner shunt
 (d) Mahurker catheter
66. The capability of a dialyzer to remove fluid expressed as ml/hr/mmHg is called:
 (a) UF-coefficient
 (b) Clearance
 (c) Surface area
 (d) Priming volume
67. Pre-pump arterial pressure reading is reflective of:
 (a) The pressure required to pump the blood through the circuit
 (b) The resistance of the access to the blood flow out of the access device
 (c) The pressure within the dialyzer
 (d) None of the above
68. What symptoms might be manifested in the patient experiencing air embolism?
 (a) Cyanosis, hypotension, burning in the chest
 (b) Chest pain, Shortness of Breath, confusion
 (c) Confusion, cherry red blood
 (d) Hypotension, double vision
69. The appearance of cherry red blood, drop in Hct, hypotension, and chest pain are signs of:
 (a) Residual chemical reaction
 (b) First use syndrome
 (c) Disequilibrium syndrome
 (d) Hemolysis
70. What determines the surface area of a hollow fiber dialyzer?
 (a) Number of fibers
 (b) Inner diameter
 (c) Length
 (d) All of the above
71. The most important predisposing factors for muscle cramping during hemodialysis are all EXCEPT:
 (a) Hypovolemia
 (b) Hypotension
 (c) High sodium dialysis solution
 (d) High UF rate

72. All of the following statements concerning "first use syndrome" are true EXCEPT:
- This is an allergic reaction to new dialyzers
 - Back pain, chest pain and difficulty breathing may be manifested
 - Symptoms are usually manifested within 15 minutes of contact
 - Synthetic membranes are more commonly associated with this syndrome
73. Which of the following statements is/are true concerning disequilibrium syndrome?
- Most common in severely catabolic cases
 - Headaches, confusion and seizures may be manifested
 - Occurrence is related to cerebral edema
 - Can only be seen in a patient who has never had dialysis before
- (a) only
 - (a) and (d) only
 - (a), (b) and (c) only
 - All of the above
74. Who developed the fistula?
- Turner
 - Scribner
 - Quinton
 - Brescia and Cimino
75. What is the purpose of a chest x-ray after the insertion of a dual lumen catheter into a subclavian or jugular vein?
- To confirm proper placement of the catheter
 - To confirm patency of the catheter
 - To confirm patency and position
 - To confirm position and absence of pneumothorax
76. Subclavian vein catheterization should be avoided for temporary access in all patients with renal failure due to increased risk of:
- Central vein stenosis
 - Pneumothorax
 - Infection
 - Difficult insertion
77. The measurement of total cell volume (TCV) is used to determine:
- Performance of the dialyzer
 - Blood leak
 - Contaminants
 - Residual chemical
78. Prior to every patient connection to a hemodialysis machine, the dialysate should be tested for:
- Colour of the dialysate
 - Electrolyte content
 - Temperature
 - Conductivity and pH
79. What is the purpose of regional heparinization?
- To systematically anticoagulate the patient
 - To give only enough Heparin to keep the dialyzer clear
 - Low dose Heparin
 - To anticoagulate the blood in extracorporeal unit
80. How much protamine sulfate should be given to neutralize Heparin?
- 1-1.5 mg protamine/100 u Heparin
 - 2 mg protamine/1000 u Heparin
 - 1 u protamine/1 u Heparin
 - Depends on the patient weight
81. Heparinization during hemodialysis can be best monitored by:
- Bleeding
 - Clotting
 - Whole blood activated clotting time
 - Clotting in dialysis circuit
82. What preventive measures can be practiced in dialysis units to control the incidence of Hepatitis B transmission?
- Regular screening of patients and staff
 - Designated area for patients with HbsAg positivity
 - Offering Hepatitis B vaccine to all patients and staff
 - All of the above
83. During PD ultrafiltration is accomplished by the utilization of:
- Hypertonic dialysate
 - Hypotonic dialysate
 - Isotonic dialysate
 - None of the above
84. Complications of Heparin therapy include all EXCEPT:
- Prolonged vascular site bleeding
 - Thrombocytopenia
 - Osteoporosis
 - Chest pain
85. Low Conductivity may be caused by:
- Inadequate water flow
 - Empty concentrate container
 - Improperly prepared or incorrect concentrate
 - All of the above
86. Presence of this ion is responsible for hardness of water:
- Fluoride
 - Copper
 - Nitrates
 - Calcium
87. The LAL (Limulus Amebocyte

Lysate) assay measures:

- (a) Organic impurities
- (b) Inorganic impurities
- (c) Bacterial count
- (d) Endotoxins

88. Which of the following methods are used to test the dialyzer to assure its efficacy?

- (a) Total cell volume
- (b) Leak test
- (c) KUF test
- (d) All of the above

89. Which of the following membranes used in dialysis are not synthetic?

- (a) Polysulfone
- (b) Polyethersulfone
- (c) Cellulose
- (d) Polyacrylonitrile (PAN)

90. Rule of 6 in assessing AV fistula maturation are all EXCEPT:

- (a) 6 mm in diameter
- (b) less than 6 mm below the skin
- (c) less than 6 cm in length
- (d) blood flow of at least 600 ml/min

91. Dialysis solution calcium levels normally range from:

- (a) 1.25 to 1.5 mEq/L
- (b) 2.5 to 3.0 mEq/L
- (c) 3.5 to 4.5 mEq/L
- (d) None of the above

92. Peritonitis in peritoneal dialysis patients is defined by:

- (a) Presence of cloudy PD effluent
- (b) 100 white blood cells/mm³
- (c) At least 50% polymorphonuclear cells
- (d) All of the above

93. Which among the following statements are false regarding ultrafiltration failure?

- (a) Net UF is less than 400ml

after a 4 hour dwell of 2.25 dextrose dialysis solution

(b) Net UF is less than 400ml after a 4 hour dwell of 4.25 dextrose dialysis solution

(c) Net UF is less than 200ml after a 4 hour dwell of 2.25 dextrose dialysis solution

(d) Net UF is less than 200ml after a 4 hour dwell of 4.25 dextrose dialysis solution

94. Benefits of regional citrate anticoagulation are all EXCEPT:

- (a) Reduced neutrophil and compliment activation
- (b) Reduced bleeding risk
- (c) Better efficacy on circuit patency
- (d) Hypocalcemia

95. Potential advantages of slow continuous therapies are all EXCEPT:

- (a) Highly effective in removing fluid
- (b) Deleterious effect on intracranial pressure
- (c) Hemodynamically well tolerated
- (d) Better control of azotemia

96. Dialyzer efficiency is best represented by:

(a) K_pA

(b) Ability to remove very large molecules

(c) High water permeability

(d) All of the above

97. Hemodialysis is a therapy of choice for the following drug toxicity except:

- (a) Lithium
- (b) Salicylate
- (c) Ethylene glycol
- (d) Amitriptyline

98. The ideal blood flow rate for membrane plasma separation:

- (a) 50 - 100 ml/min
- (b) 100 - 150 ml/min
- (c) 150 - 200 ml/min
- (d) 200 - 250 ml/min

99. Complications during plasmapheresis are all EXCEPT:

- (a) Hemorrhage
- (b) Hypocalcemia
- (c) Hypertension
- (d) Thrombocytopenia

100. Type A dialyzer reaction is due to all of the following EXCEPT:

- (a) Reaction to ethylene oxide
- (b) Reuse syndrome
- (c) Heparin
- (d) Compliment activation