D 144466 (Pages : 7) Name.....

Reg. No.....

CALICUT UNIVERSITY COMMON ENTRANCE TEST (CU-CET), APRIL 2026

M.Sc. HUMAN PHYSIOLOGY

Time : Two Hours Maximum : 200 Marks

Each question carries 4 *marks.*

One mark will be deducted for each wrong answer.

Section A

Answer **all** *questions.*

1. Which molecule serves as the primary energy currency of the cell ?

   (a) DNA. (b) RNA.

   (c) ATP. (d) ADP.

2. Production of surfactant starts at :

   (a) Immediate after placenta formation.

   (b) 7th month of fetal life.

   (c) After implantation.

   (d) Six months after birth.

3. Iron absorption is increased by :

   (a) Vitamin C. (b) Phytic acid.

   (c) Fiber diet. (d) Phosphate.

4. Inability of bone marrow to produce RBC is called :

   (a) Aplastic anemia. (b) Megaloplastic anemia.

   (c) Sickle cell anemia. (d) Pernicious anemia.

5. Normal WBC count is :

   (a) 3000 – 15000 cells/mm.^{3} (b) 5000 – 180000 cells/mm.^{3}

   (c) 4000 – 11000 cells/mm.^{3} (d) 7000 – 25000 cells/mm.^{3}

6. The catalytic efficiency of two different enzymes can be compared by the :

(a) Formation of the product. (b) Km value.

(c) Molecular size of the enzymes. (d) pH of optimum value.

7. ADH secretoin increases when there is :

(a) Hyperkalemia. (b) Hypernatremia.

(c) Hypokalemia. (d) Hyponatremia.

8. Major constituent of bone is :

(a) Actin. (b) Myosin.

(c) Troponin. (d) All of the above.

9. Baro-receptors control :

(a) Blood pressure. (b) Arterial oxygen.

(c) SPO2. (d) Stroke volume.

10. Which of the following cells is involved in humoral immunity ?

(a) B cells. (b) Mast cells.

(c) T cells. (d) Monocytes.

11. Absence in the production of HCl in the stomach is known as :

(a) Achlorhydria. (b) Hypochlorhydria.

(c) Anaplasia. (d) None of the above.

12. Normal serum bilirubin level :

(a) 0-5 mg/dl. (b) 0.5-1.5 mg/dl.

(c) 15-20 mg/dl. (d) 20-40 mg/dl.

13. End product of carbohydrate digestion in pancreas :

(a) Glucose. (b) Lactose.

(c) Sucrose. (d) Fructose.

14. Pneumotaxic centre is present in :

(a) Pons.
(b) Medulla.
(c) Hypothalamus.
(d) Thalamus.

15. Increased rate and depth of respiration is called :

(a) Eupnea.
(b) Apnea.
(c) Tachypnea.
(d) Bradypnea.

16. Which of the followng plasma proteins plays a key role in blood clotting ?

(a) Albumin.
(b) Globulin.
(c) Fibrinogen.
(d) Hemoglobin.

17. _____ the largest salivary gland.

(a) Parotid.
(b) Ebner's gland.
(c) Submandibular.
(d) Sublingual.

18. Anterior pituitary is also known as :

(a) Corpus Callosum.
(b) Adenohypophysis.
(c) Neurohypophysis.
(d) None of the above.

19. The maximum amount of oxygen in the human body is transported as :

(a) Bicarbonate.
(b) Physical form.
(c) HbO_2.
(d) Dissolved form.

20. Hormone responsible for concentrated urine formation :

(a) ADH.
(b) Renin.
(c) Prostaglandin.
(d) Oxytocin.

21. Duration of cardiac cycle is _____.

(a) 0.08 seconds.
(b) 0.12 seconds.
(c) 0.8 seconds.
(d) 0.90 seconds.

22. Cyanide poisoning lead to :

(a) Hypoxic hypoxia.

(b) Anemic hypoxia.

(c) Stagnant hypoxia.

(d) Histotoxic hypoxia.

23. _____ is the cycle of chemical reactions where the carbon from the carboncycle is fixed into sugars.

(a) Ornithine cycle.

(b) Calvin cycle.

(c) Cori cycle.

(d) None of the above.

24. The enzymes involved in cholesterol biosynthesis are found in :

(a) Cytoplasm.

(b) Endoplasmic reticulum.

(c) Peroxisomers.

(d) All of the above.

25. The correct order of steps in PCR is :

(a) Extension-Denaturation-Annealing.

(b) Annealing-Extension-Denaturation

(c) Annealing-Denaturation-Extension.

(d) Denaturation-Annealing-Extension.

26. Heart is enclosed within :

(a) Perichondrium.

(b) Periosteum.

(c) Pleural membrane.

(d) Pericardium.

27. CCU stands for :

(a) Cardiac Care Unit.

(b) Coronary Care Unit.

(c) Cancer Care Unit.

(d) Cardiological Care Unit.

28. Which of the following organ stores the bile after synthesis ?

(a) Spleen.

(b) Kidney.

(c) Liver.

(d) Gall bladder.

29. The first transgenic plant used for commercial production was :

(a) Cotton. (b) Tomato.

(c) Tobacco. (d) Rice.

30. What should be the heart rate of a healthy human being ?

(a) 60-80. (b) 90-120.

(c) 40-60. (d) 140-190.

31. What is a Rosie ?

(a) A transgenic goat. (b) A transgenic cow.

(c) A transgenic sheep. (d) A transgenic flower.

32. Umbilical cord contains ———.

(a) Pluripotent stem cells. (b) Cord blood stem cells.

(c) Blood stem cells. (d) None of the above.

33. ——— is an example of a viviparous animal.

(a) Goat. (b) Duck.

(c) Crocodile. (d) None of the above.

34. Cryptorchidism is a condition where ———.

(a) One of both testes are not developed into the scrotum.

(b) One or both testes fail to descend.

(c) One or both testes are not formed.

(d) None of the above.

35. Which is known as the pacemaker of the heart ?

(a) SA node. (b) AV node.

(c) Bundle of His. (d) Purkinjee fibers.

36. Which of these immune cells are able to quickly respond post any subsequent encounter with the same antigen ?

(a) Helper T cells.
(b) Memory cells.
(c) Plasma cells.
(d) Cytotoxic T cells.

37. Which leucocytes release cytokines and chemokines through exocytosis ?

(a) Basophil.
(b) Neutrophil.
(c) Monocyte.
(d) Lymphocyte.

38. ECG (Electrocardiogram) was developed first by :

(a) Wilhelm His.
(b) Steward.
(c) Hubert Mann.
(d) Willem Einthoven.

39. Which of the following is a part of the midbrain ?

(a) Hypothalamus.
(b) Cerebellum.
(c) Spinal cord.
(d) None of the above.

40. Which of the following element is required to synthesis thyroid hormones ?

(a) Calcium.
(b) Sodium.
(c) Iodine.
(d) Potassium.

41. ——— is known as the centre of fear.

(a) Amygdala.
(b) Hippocampus.
(c) Basal ganglia.
(d) Cerebrum.

42. Which of the following is NOT an aromatic amino acid ?

(a) Tryptophan.
(b) Tyrosin.
(c) Histidine.
(d) Proline.

43. Which of the following is a classic example of point mutation ?

(a) Phenylketonuria.
(b) Sickle cell anaemia.
(c) Haemophilia.
(d) Thalassemia.

44. An example of auto-immune disease :

(a) Myasthenia gravis. (b) Epilepsy.

(c) Hemophila. (d) Pupura.

45. SLE is an example of :

(a) Viral disease. (b) Bacterial disease.

(c) Autoimmune disease. (d) Fungal infection.

46. Para thyroid hormone regulates :

(a) Blood glucose level. (b) Blood calcium level.

(c) Basal metabolic rate. (d) Control ovulation.

47. LH is increased during ———.

(a) Ovulation. (b) Menstruation.

(c) Pregnancy. (d) Implantation.

48. The structure that prevent the entry of food bolus to the airway during deglutition.

(a) Palate. (b) Epiglottis.

(c) Tongue. (d) Crecoid.

49. Presbyopia is corrected by using :

(a) Concave lens. (b) Convex lens.

(c) Cylindrical lens. (d) Bifocals.

50. Protein synthesis is the function of :

(a) Lysosome. (b) Ribosome.

(c) Mitochondria. (d) Endoplasmic reticulum.

(50 × 4 = 200 marks)

D 123852 (Pages : 8) Name.....

Reg. No.....

CALICUT UNIVERSITY CENTRALIZED ENTRANCE TEST (CU-CET)
APRIL 2025

M.Sc. HUMAN PHYSIOLOGY

Time : Two Hours Maximum : 200 Marks

Each question carries 4 *marks.*

1 *mark will be deducted for each wrong answer.*

Answer **all** *the questions.*

1. Cardiac output is :

   (A) 5 – 6L. (B) 6 – 7L.

   (C) 7 – 8 L. (D) None of the above.

2. Volume of air that can be expired forcefully after a deep inspiration :

   (A) Tidal Volume. (B) Residual Volume.

   (C) Inspiratory capacity. (D) Vital Capacity.

3. Intrinsic factor is produced by :

   (A) Mucus neck cells. (B) Oxyntic cells.

   (C) Parietal cells. (D) Enterochromaffin cells.

4. Vit B12 deficiency anemia is called :

   (A) Aplastic anemia. (B) Megaloplastic anemia.

   (C) Sickle cell anemia. (D) Pernicious anemia.

5. Normal GFR is ————.

   (A) 125ml/min. (B) 180ml/min

   (C) 100ml/min. (D) Both (A) and (B).

6. The catalytic efficiency of two different enzymes can be compared by the :

(A) Formation of the product.

(B) Km Value.

(C) Molecular size of the enzymes.

(D) pH of optimum value.

7. Which of the following enzyme is not associated with Pancreas ?

(A) Lipase. (B) Amylase.

(C) Trypsin. (D) Tylin.

8. Fetal hemoglobin contains ———— polypeptide chains.

(A) 2 alpha. 2 gamma. (B) 2 alpha, 2 beta.

(C) 2 alpha. 2 delta. (D) 2 beta, 2 delta.

9. An insertion or deletion of nucleotides that alters the reading frame of a gene is called :

(A) Nonsense. (B) Missense.

(C) Frameshift. (D) Transversion.

10. Which of the following cells is involved in cell-mediated immunity ?

(A) B cells. (B) Mast cells.

(C) T cells. (D) Monocytes.

11. Monocytes differentiate into which kind of phagocytic cells ?

(A) Neutrophil. (B) Mast cells.

(C) T cells. (D) Macrophages.

12. Normal serum calcium level :

(A) 5mg/dl. (B) 10mg/dl.

(C) 15mg/dl. (D) 20mg/dl.

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(C) Molecular size of the enzymes.

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(C) T cells. (D) Macrophages.

12. Normal serum calcium level :

(A) 5mg/dl. (B) 10mg/dl.

(C) 15mg/dl. (D) 20mg/dl.

20. Kidney's ability to produce concentrated urine depends on ?

(A) Active transport. (B) Diffusion.

(C) Countercurrent mechanism. (D) None of the above.

21. Which of the following organisms have book lungs ?

(A) Spider. (B) Ant.

(C) Penguin. (D) Sealion.

22. Normal value of ESR is :

(A) 10 – 20 mm/hr. (B) 0 – 20 mm/hr.

(C) 100 – 200 mm/hr. (D) 1 – 20 mm/hr.

23. In the case of uricotelic animals, urea is removed via ?

(A) Ornithine cycle. (B) Kreb's cycle.

(C) Cori Cycle. (D) None of the above.

24. What is the ratio of WBC to RBC in the body ?

(A) 1 : 50. (B) 1 : 600.

(C) 1 : 6000. (D) 1 : 200.

25. A genetic linkage map represents the :

(A) Relative location of genes on a chromosome.

(B) Distribution of the mutational hotspots.

(C) Phylogenetic linkage of the organism.

(D) Accurate physical distance among loci.

26. Lungs are enclosed within :

(A) Perichondrium. (B) Periosteum.

(C) Pleural membrane. (D) Pericardium.

27. Single uriniferous tubule does not contain :

(A) Loop of Henle.
(B) Collecting duct.
(C) Distal convoluted tubule.
(D) Bowman's capsule.

28. Which of the following organs is known as the "graveyard" of RBCs ?

(A) Spleen.
(B) Kidney.
(C) Liver.
(D) Gall bladder.

29. Which of the following joints is immovable ?

(A) Fibrous joint.
(B) Synovial joint.
(C) Cartilaginous joints.
(D) Ball and Socket joint.

30. What should be the blood pressure of a healthy human being ?

(A) 120/80 mmHg.
(B) 120/100 mmHg.
(C) 110/90 mmHg.
(D) 140/90 mmHg.

31. Which body muscle can resist fatigue ?

(A) Skeletal muscle.
(B) Striped muscle.
(C) Cardiac muscle.
(D) Smooth muscle.

32. In which area does the comprehension of spoken and written words take place ?

(A) Broca's area.
(B) Wernicke's area.
(C) Association area.
(D) Sensory area.

33. When Sympathetic Nerves get activated, it releases ?

(A) Adrenaline, which stimulates the organ.
(B) Adrenaline, which inhibits the organ.
(C) Acetylcholine, which stimulates the organ.
(D) None of the above.

34. The middle portion of the human sperm contains :

(A) Nucleus. (B) Proteins.

(C) Centriole. (D) Mitochondria.

35. The balancing organ of the ear is :

(A) Organ of Corti. (B) Vestibular system.

(C) Tectorial membrane. (D) Cochlea.

36. Which of the following component cause coagulation if introduced to the blood stream ?

(A) Fibrinogen. (B) Prothrombin.

(C) Heparin. (D) Thromboplastin.

37. Which leucocytes release heparin and histamine into the blood ?

(A) Basophils. (B) Neutrophils.

(C) Monocytes. (D) Lymphocytes.

38. Arrange the following components in correct order of reflex arc :

(A) Receptor-Sensory neuron-Afferent neuron-Effecter organ.

(B) Receptor-Sensory neuron-Center-Motor neuron-Effecter organ.

(C) Sensory Neuron-Motor neuron-Centre-Effecter organ.

(D) Receptor-Sensory neuron-Center-Effecter organ.

39. Which of the following is a part of the hindbrain ?

(A) Hypothalamus. (B) Cerebellum.

(C) Spinal cord. (D) Corpus callosum.

40. Respiratory centre is located in ————.

(A) Cerebrum. (B) Cerebellum.

(C) Medulla. (D) Hypothalamus.

41. ———— is known as the centre of memory.

(A) Amygdala. (B) Hippocampus.

(C) Basal ganglia. (D) Cerebrum.

42. Which of the following is an imino acid ?

(A) Serine. (B) Alanine

(C) Glycine. (D) Proline.

43. The amino acid sequences of thousands of different proteins from many species have been determined using principles first developed by ?

(A) Watson and Crick. (B) Edman.

(C) Federick Sanger. (D) Mendel.

44. An example of auto-immune disease :

(A) Myasthenia gravis. (B) Grave's disease.

(C) Diabetes Mellitus. (D) All of the above.

45. *Mycoplasma pneumoniae* infection can lead to :

(A) Hashimoto's thyroiditis. (B) Agranulocytosis.

(C) Stevens-Johnson syndrome. (D) Thrombocytopenic purpura.

46. Thyroxine regulates :

(A) Blood glucose level. (B) Blood calcium level.

(C) Basal metabolic Rate. (D) Control ovulation.

47. ———— is the hormone responsible for ovulation

(A) Estrogen. (B) Progesteron.

(C) FSH. (D) LH.

48. Photoreceptors are found in :

(A) Retina. (B) Cornea.

(C) Sclera. (D) Lens.

49. Which of the following condition is caused due to intra ocular pressure changes ?

(A) Myopia. (B) Glaucoma.

(C) Cataract. (D) Hyperopia.

50. Outer most layer of Epidermis :

(A) Stratum lucidum. (B) Stratum corneum.

(C) Stratum spinosum. (D) Stratum basilis.

C 41696 (Pages : 16) Name.....

Reg. No.....

P.G./INTEGRATED P.G. ENTRANCE EXAMINATION, APRIL 2023

HUMAN PHYSIOLOGY

Time : Two Hours Maximum : 400 Marks

Each question carries 4 marks.

1 mark will be deducted for each wrong answer.

Section A

1. Normal platelets count is :

   (a) 4,000 – 11,000/ cumm.
   (b) 1,50,000 – 4,00,000/cum.
   (c) 1 – 2 million.
   (d) More than 2 million.

2. The hematocrit of 45 % means :

   (a) 45 % haemoglobin is in the plasma.
   (b) 45 % of the total blood volume is made up of blood plasma.
   (c) 45 % of the total blood volume is made up of formed elements.
   (d) 45 % of the haemoglobin is in red blood cells.

3. The most typical site of erythropoiesis in adults is

   (a) Liver.
   (b) Spleen.
   (c) Bone marrow.
   (d) Gut.

4. Which of the following is correct about the breakdown of haemoglobin ?

   (a) Hemoglobin - Haem - Bilirubin - Biliverdin.
   (b) Haem- Hemoglobin - Biliverdin - Bilirubin.
   (c) Hemoglobin- Haem- Biliverdin-Bilirubin.
   (d) None of the above.

5. Which has the greatest renal clearance ?

(a) PAH. (b) Glucose.

(c) Urea. (d) Inulin.

6. Which of the following concerning average lung volumes and capacities of a person at rest is TRUE ?

(a) TLC>VC>TV>FRC. (b) TLC>FRC>VC>TV.

(c) TLC>VC>FRC>TV. (d) TLC>FRC>TV>VC.

7. In which phase of the cardiac cycle ventricular volume is highest ?

(a) Isometric relaxation phase. (b) Rapid filling phase.

(c) Reduced ejection phase. (d) Atrial contraction.

8. Propagation of the action potential through the heart is fastest in which of the following ?

(a) SA node (b) Atrial muscle

(c) Purkinje fibers. (d) Ventricular muscle.

9. Oxygen toxicity :

(a) Is caused by superoxide dismutase.

(b) Causes CNS toxicity at ever 100 kPa.

(c) Is caused by absorption atelectasis.

(d) Is due to the formation of superoxide radicals.

10. Which of the following does NOT happen during inspiration ?

(a) The ribs move upward.

(b) The diaphragm lifts up.

(c) The anteroposterior dimensions of the chest are increased.

(d) The transverse dimensions of the thorax are increased.

11. At which of the following site is the highest systolic blood pressure recorded :

(a) Femoral artery. (b) Aorta.

(c) Renal artery. (d) Pulmonary artery.

12. Carbon-dioxide regulates blood flow which is one of the following :

(a) Heart. (b) Brain.

(c) Kidney. (d) Skin.

13. ADH secretion increases in all conditions except :

(a) Hypertonic ECF. (b) Decreased blood volume.

(c) Stress. (d) Hypotonic ECF.

14. 1,25 DHCC increases serum calcium and phosphates by its action on :

(a) GIT. (b) Bones.

(c) Kidney. (d) All of the above.

15. The optimal temperature for spermatogenesis is :

(a) 43 – 45°C. (b) 39 –42°C.

(c) 32°C. (d) 36.3 – 37.1°C.

16. An 18-year-old college student living in a dormitory contracts meningitis, which causes a centrally mediated increase in his respiratory rate. The basic respiratory rhythm is generated in which of the following regions of the brain ?

(a) Cerebral cortex. (b) Hypothalamus.

(c) Reticular activating system. (d) Medulla.

17. A group of second-year life sciences students accompanied a para-medical mission team to the Himalayas. After arriving at the airport in Srinagar, they hiked to a remote mountain village nearby. At this elevation of 9,000 ft, the barometric pressure was 580 mmHg, resulting in a PO2 of the dry-inspired air of what ?

(a) 116 mmHg. (b) 152 mmHg.

(c) 80 mmHg. (d) 70 mmHg.

18. A patient with parotid gland cancer has damage to the glossopharyngeal nerve. As a result, which of the following respiratory reflexes will be impaired ?

(a) Hering-Breuer inflation reflex.

(b) Juxta pulmonary capillary (J) receptor reflex.

(c) Aortic chemoreceptor reflex.

(d) Carotid body chemoreceptor reflex.

19. The most sensitive index of myocardial infarction is a rise in the plasma level of this enzyme :

(a) Tissue creatine kinase.

(b) Creatine kinase BB.

(c) Creatine kinase MM.

(d) Creatine kinase MB.

20. The last and final stage of formation of erythrocytes :

(a) Late normoblast.

(b) Erythroblast.

(c) Pronormoblast.

(d) Reticulocyte.

21. The presence of antibodies already bound to red blood cells as in hemolytic disease of the newborn :

(a) Direct Coombs test.

(b) Indirect Coombs's test.

(c) Major cross-matching.

(d) Eliza.

22. The main source of heat loss from the body is by :

(a) Vaporization of sweat.

(b) Radiation and conduction.

(c) Urination and defecation.

(d) Respiration.

23. The following are seen in Huntington's disease *except* :

(a) Hypokinetic movements.

(b) Slurred speech.

(c) Dementia.

(d) Death usually within 10 to 15 years after the onset of the symptom.

24. The aphasias are due to :

(a) Abnormalities of language functions that are not due to defects of vision or hearing or to motor paralysis.

(b) Caused by lesions in the Categorical hemisphere.

(c) The lesion is in Wernicke's area.

(d) All of the above.

25. Which of the following is not a risk factor for Alzheimer's disease ?

(a) Age.

(b) Presenilin 1 mutation.

(c) Loss of GABAergic pathway to the Globus pallidus.

(d) Trisomy 21.

26. The presence of non-diffusible ions on one side of the membrane leads to the distribution of diffusible ions in a predictable way. This is explained by :

(a) Nernst equation.

(b) Gibbs Donnan equation.

(c) Hassel Balch equation.

(d) Goldman-hodgkin-Katz equation.

27. Which of the following is true about spliceosomes ?

(a) Composed of RNAs, DNAs and proteins.

(b) Eliminates introns of some genes.

(c) Segments of DNA which determines the formation of proteins.

(d) Segments of RNA that are not translated.

28. In true hermaphroditism :

(a) Genetic females are exposed to androgens.

(b) Has gonads of one sex and genitalia of the other.

(c) Individuals have both ovaries and testes.

(d) Can turn out as Turner syndrome or Klinefelter syndrome.

29. Milk ejection is the function of :

(a) Oxytocin. (b) Vasopressin.

(c) Prolactin. (d) Oestrogen.

30. Insulin-stimulated glucose uptake in adipose tissue take place through :

(a) GLUT 2. (b) GLUT 4.

(c) GLUT 6. (d) GLUT 7.

31. The serum level of calcium is :

(a) 10 mg/dl. (b) 2.5 mmol/L.

(c) 5 meqv/L. (d) All of the above are correct.

32. Anaerobic bacteria are often cultured from infected deep tissue abscesses. If you were a neutrophil recruited to an anaerobic site to kill such a bacterium, which of the following substances would you most likely use ?

(a) IL-12. (b) Nitric oxide.

(c) Respiratory burst oxidase. (d) Cathelicidin.

33. A patient presents with lymphocytosis and enlarged lymph nodes, and a biopsy of the bone marrow is performed. Ninety per cent of the patient's bone marrow cells stain with a fluorescent antibody specific for CD3. Which of the following is a reasonable differential diagnosis ?

(a) AIDS.

(b) T cell leukaemia.

(c) Cytomegalovirus infection.

(d) This is a normal laboratory finding.

34. In DiGeorge syndrome :

(a) Thymus is defective.

(b) Parathyroid hormone production is decreased.

(c) Cardiac outflow blood is defective.

(d) All of the above.

35. Superoxide dismutase-containing bacteria :

(a) Need superoxide to grow.

(b) Are frequently obligate anaerobes.

(c) Grow slowly in the presence of CO_2.

(d) Produce hydrogen peroxide from hydrogen ion and the superoxide free radical.

36. The expression of the lac operon :

(a) Must be initiated by the binding of an inducer protein.

(b) Involves the release of allolactose from a repressor protein.

(c) Does not involve the expression of structural genes.

(d) Necessitates the finding of RNA polymerase followed by transcription.

37. Bacteriophage containing host-cell DNA is involved in which of the following processes ?

(a) Conjugation. (b) Transduction.

(c) Transcription. (d) Recombination.

38. The First life on earth was :

(a) Cyanobacteria. (b) Chemoheterotrophs.

(c) Autotrophs. (d) Photoautotrophs.

39. The Five kingdom system of classification suggested by R. H. Whittaker is not based on :

(a) Presence or absence of a well-defined nucleus.

(b) Mode of reproduction.

(c) Mode of nutrition.

(d) Complexity of body organization.

40. A mutation which rarely disrupts gene product function is a :

(a) Deletion. (b) Insertion.

(c) Nonsense. (d) Nucleotide substitution.

41. Passive immunization is available for protection from :

(a) Influenza A virus.
(b) Hepatitis A virus.
(c) Parainfluenza type 2 virus.
(d) Rubella virus.

42. A killed virus vaccine is :

(a) Jeryl Lynn mumps vaccine.
(b) Enders' measles vaccine.
(c) Salk poliovirus vaccine.
(d) Oka varicella-zoster vaccine.

43. The exchange of homologous segments of RNA between two different influenza type A viruses is called :

(a) Complementation.
(b) Genetic reassortment.
(c) Phenotypic masking.
(d) Phenotypic mixing.

44. The nanogram level of antigen in serum is detected by :

(a) Dot blot tests.
(b) Enzyme-linked immunosorbent assay.
(c) Fluorescent antibody staining.
(d) Protein-protein hybridization tests.

45. A commercial vaccine consisting of virion subunits prepared by recombinant technology exists for :

(a) Hepatitis B virus.
(b) Rabies virus.
(c) Rotavirus.
(d) Varicella-zoster virus.

46. The normal flora of the large intestine consists mainly of :

(a) Bacteria.
(b) Fungi.
(c) Protozoa.
(d) No microbial agents.

47. A cell that secretes antibodies that recognize polysaccharides is a

(a) B-1 cell.
(b) Naive mature B cell.
(c) Memory B cell.
(d) Plasma cell.

48. A cell performing somatic hypermutation is a :

(a) B-1 cell. (b) Naive mature B cell.

(c) Centrocyte. (d) Memory B cell.

49. A cell that secretes large quantities of antibody but does not express surface immunoglobulin:

(a) B-1 cell. (b) Naive mature B cell.

(c) Memory B cell. (d) Plasma cell.

50. A cell that expresses both IgM and IgD on the cell surface is a :

(a) B-1 cell. (b) Naive mature B cell

(c) Centrocyte. (d) Memory B cell.

51. A short-lived phagocytic cell recruited to inflammatory sites by macrophage secretion of CCL8 is a :

(a) Neutrophil. (b) Basophil.

(c) Eosinophil. (d) Mast cell.

52. Guttation is mainly due to :

(a) Root pressure. (b) Osmosis.

(c) Transpiration. (d) Imbibition.

53. Acid rain is caused by increase in the atmospheric concentration of :

(a) SO3 and CO. (b) CO_2 and CO.

(c) O_3 and dust. (d) SO_2 and NO_2.

54. Bidirectional translocation of minerals takes place in :

(a) Xylem. (b) Phloem

(c) Parenchyma. (d) Cambium.

55. Water soluble pigments found in plant cell vacuoles are :

(a) Xanthophylls. (b) Chlorophylls.

(c) Carotenoids. (d) Anthocyanin.

56. Cyclic photophosphorylation results in the formation of :

(a) ATP and NADPH. (b) ATP, NADPH and O2.

(c) ATP. (d) NADPH.

57. Most hazardous metal pollutant of automobile exhausts is :

(a) Mercury. (b) Cadmium.

(c) Lead. (d) Copper.

58. Biochemical Oxygen Demand (BOD) in river water

(a) Has no relationship with concentration of oxygen in the water.

(b) Gives a measure of salmonella in the water.

(c) Increases when sewage gets mixed with river water.

(d) Remains unchanged when algal bloom occurs.

59. The first carbon-dioxide acceptor in C4 plants is :

(a) Phosphoenol-pyruvate. (b) Ribulose 1, 5-diphosphate.

(c) Oxalo-acetic acid. (d) Phosphoglyceric acid.

60. The highest number of species in the world is represented by :

(a) Fungi. (b) Mosses.

(c) Algae. (d) Lichen.

61. Fertility of soil is measured by its ability to :

(a) Retain nutrients. (b) Hold organic materials.

(c) Hold water. (d) Support life.

62. Dark reactions of photosynthesis occur in :

(a) Granal thylakoid membranes.

(b) Stromal lamella membranes.

(c) Stroma outside photosynthetic lamellae.

(d) Periplastidial space.

63. The most important feature of all living systems is to :

(a) Utilize oxygen to generate energy.

(b) Replicate the genetic information.

(c) Produce gametes.

(d) Utilize solar energy for metabolic activities.

64. The sequence of taxonomic categories is :

(a) Class - Phylum - Tribe - Order - Family - Genus - Species.

(b) Division - Class - Family - Tribe - Order - Genus - Species.

(c) Division - Class - Order - Family - Tribe - Genus - Species.

(d) Phylum - Order - Class - Tribe - Family - Genus - Species.

65. Alleles are :

(a) True breeding homozygotes.

(b) Different molecular forms of a gene.

(c) Heterozygotes.

(d) Different phenotype.

66. Sickle cell anaemia is induced by :

(a) Change of amino acid in a chain of haemoglobin.

(b) Change of amino acid in the b-chain of haemoglobin.

(c) Change of amino acid in both a- and b-chain of haemoglobin.

(d) Change of amino acid in either a- or b-chain of haemoglobin.

67. A cell derived from monocytes that attach to the arterial intima and accumulate lipids is a :

(a) M1 macrophage. (c) M2 macrophage.

(c) Foam cell. (d) Giant cell.

68. Parthenogenesis is :

(a) Development of embryo without fertilization.

(b) Development of fruit without fertilization.

(c) Development of fruit without hormones.

(d) Development of embryo from egg without fertilization.

69. Nucellar embryo is :

(a) Amphimictic haploid. (b) Amphimictic diploid.

(c) Apomictic haploid. (d) Apomictic diploid.

70. Double fertilization is fusion of :

(a) Two eggs.

(b) Two eggs and polar nuclei with pollen nuclei.

(c) One male gamete with egg and other with synergid.

(d) One male gamete with egg and other with secondary nucleus.

71. Micropyle of seed is involved in the passage of :

(a) Male gamete. (b) Pollen tube.

(c) Water. (d) Gases.

72. Study of fossils is :

(a) Palaeontology. (b) Herpetology.

(c) Saurology. (d) Organic evolution.

73. A test cross is carried out to :

(a) Determine the genotype of a plant at F2.

(b) Predict whether two traits are linked.

(c) Assess the number of alleles of a gene.

(d) Determine whether two species or varieties will breed successfully.

74. Inheritances of skin colour in humans is an example of :

(a) Point mutation.

(b) Polygenic inheritance.

(c) Codominance.

(d) Chromosomal aberration.

75. How many different kinds of gametes will be produced by a plant having the genotype AABbCC ?

(a) Four. (b) Nine.

(c) Two. (d) Three.

76. Independent assortment of genes does not take place when ?

(a) Genes are located on homologous chromosomes.

(b) Genes are linked and located on same chromosomes.

(c) Genes are located on non-homologous chromosomes.

(d) All the above.

77. The dimensions of pressure are the same as that of :

(a) Force per unit volume.

(b) Energy per unit volume

(c) Force.

(d) Energy.

78. The molecular weight of O_2 and SO_2 are 32 and 64 respectively. At 15°C and 150 mmHg pressure, one litre of O_2 contains 'N' molecules. The number of molecules in two litres of SO_2 under the same conditions of temperature and pressure will be :

(a) N/2. (b) N.

(c) 2 N. (d) N 7.

79. The number of water molecules is maximum in :

(a) 1.8 gram of water. (b) 18 gram of water.

(c) 18 moles of water. (d) 18 molecules of water.

80. DDT residues are rapidly passed through food chain causing bio-magnification because DDT is :

(a) Moderately toxic.

(b) Non-toxic to aquatic animals.

(c) Water soluble.

(d) Lipo soluble.

81. A major component of Gobar gas is :

(a) Ammonia. (b) Methane.

(c) Ethane. (d) Butane.

82. Which has maximum molecules ?

(a) 7g N_2. (b) 2gH_2.

(c) 16g NO_2. (d) 16gO_2.

83. Hemoglobin contains 0.334 % of iron by weight. The molecular weight of hemoglobin is approximately 67,200. The number of iron atoms (Atomic weight of Fe is 56) present in one molecule of hemoglobin is :

(a) 4. (b) 6.

(c) 3. (d) 2.

34. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is :

(a) 40. (b) 10.

(c) 20. (d) 30.

85. When 22.4 litres of H_2(g) is mixed with 11.2 litres of Cl_2(g), each at STP, the moles of HCl(g) formed is equal to :

(a) 1 mol of HCl. (b) 2 mol of HCl (g).

(c) 0.5 mol of HCl (g). (d) 1.5 mol of HCl (g).

86. 10 g. of hydrogen and 64 g. of oxygen were filled in a steel vessel and exploded Amount of water produced in this reaction will be :

(a) 3 mol. (b) 4 mol.

(c) 1 mol. (d) 2 mol.

87. The zone of atmosphere in which the ozone layer is present is called :

(a) Ionosphere. (b) Mesosphere.

(c) Stratosphere. (d) Troposphere.

88. Which of the following is a secondary pollutant ?

(a) CO. (b) CO2.

(c) PAN. (d) Aerosol.

89. Which gas contributes most to greenhouse effect ?

(a) CFC. (b) Freon.

(c) CO2. (d) CH4.

90. A species facing extremely high risk of extinction in the immediate future is called :

(a) Vulnerable. (b) Endemic.

(c) Critically endangered. (d) Extinct.

91. Which organization publishes the Red Data Book ?

(a) GEF. (b) IUCN.

(c) UNEP. (d) WWF.

92. Maximum nutritional diversity is found in the group.

(a) Fungi. (b) Animalia.

(c) Monera. (d) Plantae.

93. What is common about Trypanosoma, Noctiluca, Monocystis and Giardia ?

(a) They have flagella.

(b) They produce spores.

(c) These are all parasites.

(d) These are all unicellular protests.

94. Single-celled eukaryotes are included in :

(a) Protista. (b) Fungi.

(c) Archaea. (d) Monera.

95. Mycorrhiza is :

(a) A symbiotic association of plant roots and certain fungi.

(b) An association of algae with fungi.

(c) A fungus parasitising root system of higher plants.

(d) An association of rhizobium with the roots of leguminous plants

96. Special character of Coelenterates is :

(a) Polymorphism. (b) Nematocysts.

(c) Flame cells. (d) Hermaphroditism.

97. One of the representatives of phylum Arthropoda is :

(a) Silverfish. (b) Pufferfish.

(c) Flying fish. (d) Cuttlefish.

98. All vertebrates possess :

(a) Renal portal system.

(b) Dorsal hollow central nervous system.

(c) Four chambered ventral heart.

(d) Pharyngeal gill slits.

99. A pro-inflammatory cytokine with a major role in asthma is a :

(a) IL-4. (b) IL-6.

(c) IL-10. (d) IL-17.

100. A cytokine that promotes cell-mediated immunity and is produced by Th1 cells is a :

(a) INF-γ. (b) IL-4.

(c) IL-6. (d) IL-10.