DU_ZOOLOGY_2017

1. Enzyme catalyzing rearrangement of atomic groupings without altering molecular weight of number of atoms is :

   (a) Ligase (b) Isomerase (c) Oxidoreductase (d) Hydrolase

2. Most of the members of vitamin B complex act as :

   (a) Cofactor (b) Coenzyme (c) Prosthetic group (d) Apoenzyme

3. Which of the following is tick borne viral disease ?

   (a) Babesiosis (b) Yellow fever

   (c) Bengue hemorrhagic fever (d) Plague

4. Which of the following exhibits complete metamorphosis ?

   (a) Mayfly (b) Mealy bug (c) Beetle (d) Dragonfly

5. Which of the following is not a congenital disease ?

   (a) Sickle cell anaemia (b) Albinism

   (c) Haemophilia (d) Hepatitis

6. The Barr bodies are made up of :

   (a) Constitutive euchromatin (b) Facultative euchromatin

   (c) Constitutive heterochromatin (d) Facultative beterochromatin

7. Which of the following organs develops first in mammals during embryonic growth ?

   (a) Notochord (b) Liver (c) Heart (d) Kidneys

8. Marsupial mammals moved from South America to Australia via :

   (a) Antarctica (b) Africa

   (c) Galapagos Archipelago (d) Madagascar

9. When a man and woman carrying the allele for phenylketonuria but not having this disease marry and have a normal child without disease, then what is the probability that their child is a carrier of this disease ?

   (a) 0.25 (b) 0.50 (c) 0.75 (d) 1.00

10. Which of the following are the stages of respiration in the correct order ?

   (a) Gaseous transport, breathing, tissue respiration and cellular respiration

   (b) Breathing, gaseous transport, tissue respiration and cellular respiration

   (c) Breathing, gaseous transport, cellular respiration and tissue respiration

   (d) Breathing, tissue respiration, cellular respiration and gaseous transport

11. Binding of antigen to antibody is through :

(a) Disulphide bridges (b) Amide formation

(c) Covalent bonds (d) Electrostatic interactions

12. Cells of immune system that cause pore formation in the infected target cell are :

(a) Helper T-cells (b) Killer T-cells

(c) Suppressor T-cells (d) B-cells

13. Conversion of antigen into harmless insoluble matter by antibodies is :

(a) Agglutination (b) Opsonisation (c) Neutralisation (d) Activation

14. Which one does help in differentiation of cells of immune system ?

(a) Cortisol (b) Thymosin (c) Steroid (d) Thyroxine

15. Immunity acquired by infant from mother through milk is :

(a) Active immunity (b) Passive immunity

(c) Cellular immunity (d) Innate nonspecific immunity

16. Inhibiting enzyme action by blocking its active sites is :

(a) Allosteric inhibition (b) Feedback inhibition

(c) Competitive inhibition (d) Non-competitive inhibition

17. The process of early development in which the three germ layers form is called :

(a) Fertilisation (b) Cleavage (c) Gastrulation (d) Organogenesis

18. How many chambers are there in the heart of the frog tadpole ?

(a) One (b) Two (c) Three (d) Four

19. When protein synthesised by one cell can diffuse over a small distance to induce change in neighbouring cell, the event is called as :

(a) Paracrine (b) Juxtacrine (c) Autocrine (d) Endocrine

20. Eukaryotic RNA polymerase(s) that is/are most sensitive to α-amanitin :

(a) RNA Pol I (b) RNA Pol II (c) RNA Pol III (d) RNA Pol I and III

21. Which enzyme is most frequently used in polymerase chain reaction ?

(a) Taq polymerase (b) DNA polymerase (c) RNA polymerase (d) Ligase

22. Southern Blot Analysis/Hybridization is used for detection of specific :

(a) DNA sequence (b) RNA sequence (c) Protein (d) Carbohydrates

23. Metaphase chromosomes are classified based on the following characteristics :

(a) Centromere length (b) Centromere position

(c) Telomere length (d) Telomere position

24. Antibody detected in largest amount during secondary immune response is :

(a) IgM (b) IgG (c) IgA (d) IgD

25. The tidal volume in a normal man at rest is about :

(a) 0.5 L (b) 1.2 L (c) 2.5 L (d) 4.9 L

26. The type of body cavity seen in the roundworms is called a/an :

(a) Coelom (b) Acoelom

(c) Pseudocoelom (d) Gastrovasular cavity

27. Which one of the following animal groups belongs to the same class ?

(a) Earthworm, Lumbricus, leech (b) Spider, louse, millipede

(c) Cuttlefish, ammonites, squids (d) Silverfish, crayfish, razor fish

28. Of the following ecological relationships, which one is the most different from the other three ?

(a) Algae embedded in coral tissues (b) *Salmonella* in human gastric tract

(c) Cellulolytic bacteria in a termite gut (d) Pollen-collecting bees visiting flowers

29. Which of the following evolutionary process is random ?

(a) Gene flow (b) Mutation (c) Genetic drift (d) Speciation

30. The Southern blot technique involves the following major steps :

1. Hybridization and autoradiography
2. Blotting
3. Restriction enzyme digestion
4. Electrophoresis

Which of the following sequences of steps best illustrates this technique ?

(a) 1, 2, 3, 4 (b) 1, 3, 2, 4 (c) 3, 2, 4,1 (d) 3, 4, 2, 1

31. Kozak sequence is associated with :

(a) Transcription (b) Repair of DNA (c) Translation initiation (d) Replication

32. Which of the following processes is not an example of allosteric regulation ?

(a) Regulation of phosphofructokinase activity by frucotse 2, 6-bisphosphate

(b) Inactivation of nitrogenase by ADP ribosylation

(c) Regulation of the lac operon by allolactose in *E.coli*

(d) Catabolite repression by CAP in *E.coli*

33. Identify the statement that is not true for facilitated diffusion. This process

(a) Is faster than simple diffusion

(b) Exhibits saturation kinetics

(c) Is not selective

(d) Can be inhibited by agents known to denature proteins

34. All of enzymes of the TCA cycle are located in the mitochondrial matrix *except* :

(a) Citrate synthase
(b) α -ketoglutarate dehydrogenase
(c) Succinate dehydrogenase
(d) Fumarase

35. Chloramphenicol inhibits :

(a) Cell wall synthesis in bacteria
(b) Protein synthesis on 70S ribosome
(c) Protein synthesis on 80S ribosome
(d) DNA replication

36. If individuals of genotype AaBbCc are intercrossed, how many different F_2 phenotypes can appear assuming complete codominance at all loci ?

(a) 8 (b) 64 (c) 27 (d) 9

37. ATP can be formed from ADP using following enzyme :

(a) Adenylate kinase
(b) Hexokinase
(c) Glucokinase
(d) Pyruvate kinase

38. Melting temperature (Tm) of double stranded DNA increases with :

(a) Increase in number of guanine/cytosine bases
(b) Increase in number of adenine/thymine bases
(c) Random increase in any type of base
(d) Decrease in number of bases

39. Which of the following is the precursor for steroid hormones ?

(a) Tryptophan (b) Cholesterol (c) Stearic acid (d) Glycogen

40. Transcription factors bind specific sequences of DNA to :

(a) protect the DNA from attack of nucleases
(b) synthesize a strand of DNA
(c) regulate mRNA synthesis
(d) alter catalytic efficiency of enzymes

41. In animals Nicotinamide adenine dinucleotide phosphate is generated in :

(a) Pentose Phosphate pathway
(b) Glycolysis
(c) Tricarboxylic acid Pathway
(d) Fatty acid degradation Pathway

42. Both Hexokinase and Glucokinase phosphorylate glucose but :

(a) K_m for hexokinase is same as glucokinase
(b) K_m for hexokinase is more than glucokinase
(c) K_m for hexokinase is less than glucokinase
(d) Both are same enzyme with different name

43. Motor proteins that bind to the cytoskeleton of an animal cell produce various intracellular movements. Which one of the following has no known motor proteins ?

(a) Microtubules
(b) Microfilaments
(c) Intermediate filaments
(d) Stress fibres

44. In the classic Meselson and Stahl experiment the technique used to analyse *E.coli* DNA was :

(a) Differential centrifugation (b) Equilibrium density centrifugation

(c) Rate zonal centrifugation (d) Agarose gel electrophoresis

45. Which of the following statements is not true for the nuclear pore complex (NPC)?

(a) The NPC exhibits an eight - fold symmetry

(b) Molecules of 20-40 kDa diffuse through the NPC

(c) Nuclear localization signals present on the nucleoporins are recognized by importins

(d) The localization of Ran-GEF in the nucleus and Ran-GAP in the cytoplasm ensures that transport across the NPC is unidirectional

46. The extracellular matrix in the dermis of the skin is synthesized by the :

(a) Epidermal cells (b) Fibroblasts (c) Mast cells (d) Basal epithelium

47. A defect in which one of the following junctions would affect transepithelial transport of glucose from the intestinal lumen into the blood ?

(a) Tight junctions (b) Gap junctions

(c) Adherens junctions (d) Adhesion junctions

48. Estrous cycle in rat is an example of :

(a) Circadian rhythm (b) Infradian rhythm

(c) Ultradian rhythm (d) Diural rhythm

49. The term 'Zeitgeber' is used for :

(a) Time giver (b) Phase shift (c) Acrophase (d) Bathypase

50. The First Asian to win Nobel prize in Medicine and Physiology is :

(a) Hargovind Khorana (b) Susumo Tonegawa

(c) Yoshinori Ohsumi (d) Shinya Yamanaka