

A

22135

120 MINUTES

- Which among the following periods come under Mesozoic era ?
1. Cretaceous 2. Jurassic 3. Tertiary 4. Triassic
A) 1 and 2 only B) 1, 2 and 4 only
C) 2, 3 and 4 only D) 2 and 3 only
- The World Summit on Sustainable Development was held at
A) Johannesburg in 2002 B) Rio de Janeiro in 1992
C) Canada in 1987 D) Tokyo in 2010
- Increase in concentration of toxicant at successive trophic level is known as
A) Eutrophication B) Biotic potential
C) Biomagnification D) Cultural eutrophication
- Glucagon is a hyperglycaemic hormone. It promotes
1. glycogenolysis 2. glycolysis 3. glycogenesis 4. gluconeogenesis
A) 1 and 2 only B) 1 and 4 only
C) 3 only D) 3 and 4 only
- Which among the following is an **incorrect** statement?
A) Royal jelly is produced by the hypopharyngeal glands of queen
B) Bee venom contains melittin and histamine
C) Hydroxymethylfurfural is a component of honey
D) Propolis is a resinous mixture used by honey bees to fill the gaps in the comb
- Amensalism is an interaction
A) beneficial to one partner and neutral to the other
B) harmful for both the partners
C) harmful to one partner and neutral to the other
D) beneficial to one partner and harmful to the other
- In a translational unit, Untranslated region (UTR) is seen
A) between start codon and stop codon
B) after start codon
C) before stop codon
D) before start codon and after stop codon
- An example of negative stain used in Electron microscopy is
A) Gluteraldehyde B) Osmium tetroxide
C) Uranyl acetate D) Canada balsam
- In Krebs Citric acid cycle, the enzyme that converts Citric acid to Isocitric acid is
A) Aconitase B) Isocitric dehydrogenase
C) Fumerase D) Malate dehydrogenase

22. The genera Paranthropus, Homo and Kenyathropus evolved from:
 A) Ramapithecus B) Australopithecus
 C) Homo habilis D) Homo erectus
23. Match the biogeographic zones with its biotic provinces
 a. Coast 1. Punjab plains
 b. Deccan peninsula 2. Chotta- Nagpur
 c. Trans- Himalaya 3. Lakshadweep
 d. Semi-arid 4. Ladakh mountains
- A) a-1, b-2, c-3, d-4 B) a-2, b-1, c-3, d-4
 C) a-3, b-1, c-4, d-2 D) a-3, b-4, c-2, d-1
24. The strategy of conserving endangered species in natural habitats is:
 A) In-situ conservation B) Ex-situ conservation
 C) Wild-life conservation D) Both a and b
25. The affinity of hemoglobin towards O₂ is decreased due to
 A) Decrease in pH B) Increase in pH
 C) No effect due to pH D) Decrease in CO₂
26. Glomerular filtration rate of an average human:
 A) 180.2 L/day B) 180 L/day C) 189 L/day D) 80 L/ day
27. Vitamin K serves as an essential cofactor for:
 A) Glutamate B) Carboxylase C) Prothrombin D) Fimbrinogen
28. The inactive angiotensinogen is produced in:
 A) Plasma B) Liver C) Kidney D) Renal pelvis
29. Enzyme responsible for cleavage of smooth muscle myosin:.
 A) Pepsin B) Trypsin
 C) Chymotrypsin D) None of the above
30. Pesticide resistance is an example of:
 A) Microevolution B) Macroevolution
 C) Quantum evolution D) Mega evolution
31. Part of flame photometer used to send homogenous solution into the flame at a balanced rate:
 A) Burner B) Nebulizer
 C) Optical system D) Photo detector
32. Lectin chaperones:
 A) GRP94 B) HSP47 C) Calnexin D) ERp57
33. A location in a genome where a short nucleotide sequence is organized as tandem repeat:
 A) VNTR B) RAPD C) AFLP D) RFLP

34. Velvet worms belongs to phyla?
 A) Onychophora B) Nematoda C) Rotifera D) Mollusca
35. Standard error of sample mean =
 A) $SE = \sigma / \sqrt{n}$ B) $SE = N/\sqrt{\sigma}$ C) $SE = N/n$ D) $SE = \sigma/N$
36. Biotechnological method to detect specific DNA molecule
 A) Western blotting B) Southern blotting
 C) Gene therapy D) Northern blotting
37. The following disease is caused by the deficiency of Vitamin D
 A) Beriberi B) Scurvy C) Cheilosis D) Osteomalacia
38. The splitting or migration of one sheet of cells into two in bird hypoplast during gastrulation is termed as:
 A) Epiboly B) Delamination
 C) Invagination D) Involution
39. GenBank is located in:
 A) Bethesda B) Heidelberg C) New York D) London
40. Chromosomal abnormality caused due to translocation of Chromosome 9 and 22:
 A) Burkitt's lymphoma B) Philadelphia chromosome
 C) Agglutination D) Myelogenous chromosome
41. Na^+ -Glucose transport across the membrane of small intestine is an example of:
 A) Symport B) Uniport
 C) Antiport D) Primary active transport
42. Formation of attachment plaques occur in which stage of meiosis?
 A) Leptotene B) Pachytene C) Zygotene D) Diplotene
43. Dolicol play a role in the co-translational modification of proteins known as N-glycosylation in the form of:
 A) Dolicoltriphosphate B) Dolicolpyrophosphate
 C) Dolicolphosphate D) N-linked dolicol
44. RT-PCR refers to:
 A) Reverse transcriptase polymerase chain reaction
 B) Reverse transcription polymerase chain reaction
 C) Retro transcriptase DNA polymerase chain reaction
 D) Taq DNA polymerase chain reaction
45. A syndrome in which the person has extra chromosome 13.
 A) Down syndrome B) Patau syndrome
 C) Edward's syndrome D) Nullisomy

46. Where would you find right-handed alpha helix in a Ramachandran plot?
 A) -60 phi; -60 psi B) -60 phi; +60 psi
 C) +60 phi; +60 psi D) + 60 phi; -60 psi
47. The first step of Calvin cycle is catalyzed by:
 A) Carboxylase B) Oxygenase C) Rubisco D) Mutase
48. Which of the following is function of protein microarray?
 Identification of
 A) Protein-protein interaction B) Protein- phospholipid interaction
 C) Substates of protein kinases D) All of the above
49. Differentiated cyanobacterial cell which carries out nitrogen fixation:
 A) Heterocysts B) Filamentous cell
 C) Nitritic cell D) Myelin cycts
50. The general formula of carbohydrates is:
 A) $C_x(H_2O)_y$ B) C_xH_2CO C) $C_x(H_2O_4)_y$ D) $C_x(H_2O_2)_y$
51. The first Environment Impact Assessment notification was issued in:
 A) 1994 B) 1993 C) 1990 D) 1992
52. Type I hypersensitivity is mediated by:
 A) IgM B) IgG
 C) IgE D) Complement system
53. Prions are infectious, self- replicating proteinaceous materials devoid of:
 A) Endoplasmic reticulum B) Ribosomes
 C) Nucleic acids D) Cytoplasm
54. Bee hive equipment used to trap pollens from the legs of foragers:
 A) Queen excluder B) Pollen cage
 C) Pollen trap D) Bee brush
55. Thelytoky occurs in:
 A) Wasp B) Crustaceans C) Aphids D) Honey bee
56. Which part of brain controls the circadian biological clock?
 A) Superchiasmatic nucleus B) Superiolateral Nucleus
 C) Supernasal region D) Pictorial lobe
57. Glial cells which wrap around motor and sensory neurons to form myelin sheath.
 A) Axon cells B) Rode of Ranvier
 C) Schwann cells D) Synaptic cells
58. Vitamin that functions as coenzyme in the oxidation of glucose.
 A) Retinol B) Thiamin C) Cobalamin D) Folic acid

59. Identical name for two different taxa refers to:
 A) Homonym B) Synonym C) Antonym D) Tautonym
60. Narmada BachaoAndolan was led by:
 A) Medha Patkar B) Sundelal Bahuguna
 C) Vandana Shiva D) Sunita Narain
61. Volant adaptations are concerned with:
 A) Flight B) Aquatic C) Dessert D) Land
62. In evolutionary time scale the age of amphibians is represented by which period:
 A) Devonian B) Carboniferous
 C) Cretaceous D) Ordovician
63. Chaetognatha the predatory marine worms are popularly known as
 A) Arrow worms B) Flat worms
 C) Parasitic worms D) Algal worms
64. The dorsal lip cells of blastopore induced by Nieukoopcentre.:
 A) Hensen's node B) Node
 C) Embryonic shield D) Organizer
65. Interfering RNAs which binds to the target RNA perfectly to block its translation.
 A) miRNA B) siRNA
 C) iRNA D) satellite RNA
66. The peptidoglycan (PGN) structure of both Gram-positive and Gram-negative bacteria comprises repeating disaccharide backbones of N-acetylglucosamine (NAG) and :
 A) β -(1-4)-N-acetylmuramic acid (NAM)
 B) α -(1-6)-N-acetylmuramic acid (NAM)
 C) α -(1-4)-N-acetylmuramic acid (NAM)
 D) β -(1-6)-N-acetylmuramic acid (NAM)
67. **Assertion (A)** : Facilitated diffusion involves transport of materials with the help of carrier molecules without energy expenditure
Reason(R) : The energy of glucose into erythrocytes is an example of facilitated diffusion
 A) Both A and R are true and R is correct explanation of A
 B) Both A and R are true but R is not correct explanation of A
 C) A is true but R is false
 D) A is false but R is true
68. Plasmid vectors capable of propagation in two different hosts.:
 A) Artificial vectors B) Shuttle vectors
 C) Adeno vectors D) None of the above
69. A family of transmembrane proteins that form gap junctions in vertebrates:
 A) Occluding B) Connexins C) Cadherins D) Integrins

70. In lac operon, ----- level of glucose results in cAMP production to promote RNA binding.
 A) Low B) High C) Zero D) Maximum
71. Rod cells sense light with the aid of light sensitive GPCR known as:
 A) Retinopsin B) Rhodopsin C) Cone cells D) Transducin
72. The rich source of carbon compounds in microalgae can be used in:
 A) Gene therapy B) Metabolite's production
 C) Biofuel D) Antibiotics
73. Gene that triggers X- chromosome inactivation in dosage compensation:
 A) Xist B) XIC C) XX D) Yist
74. A type of learning that uses reasons to solve a problem than hit trial and error method:
 A) Latent B) Insight
 C) Operant D) Instrumental
75. Founder effect principle was developed by-
 A) Kimura B) S. Wright C) Ernst Mayr D) P. Odum
76. Clostridium botulinum prevents the release of this neurotransmitter causing flaccid paralysis:
 A) Acetylcholine B) Serotonin
 C) Glutamate D) Dopamine
77. An inactive precursor of an enzyme:
 A) Ribozymes B) Inactive proteins
 C) Isozymes D) Zymogens
78. Which of the following is biostatic measure of dispersion?
 A) Mean B) Mode
 C) Standard error D) One-way annova
79. Mutation of gene for making protein called coagulation factor IX causes:
 A) Haemophilia B B) Haemophilia A
 C) Rh disease D) Haemophilia C
80. Prenatal toxicity characterized by structural or functional defects in developing embryo:
 A) Parthenogenesis B) Prenatal diagnosis
 C) Teratogenesis D) Pleuripotency
81. Chemosynthetic theory of origin of life was proposed by
 A) A.V Hill B) A.I Oparin
 C) O. Meyerhof D) T. Svedberg

82. Match the following
- | | |
|----------------|---|
| a. Pluripotent | 1. develop into different type of cells |
| b. Totipotent | 2. undifferentiated inner mass cell |
| c. Embryonic | 3. capacity to get self- renewed |
| d. Stem cells | 4. give rise to new organism |
- A) a-3, b-4, c-1, d-2 B) a-3, b-4, c-2, d-1
C) a-3, b-2, c-4, d-1 D) a-4, b-3, c-2, d-1
83. Type of wave detected by EEG during deep sleep:
A) Alpha B) Beta C) Theta D) Delta
84. 60S subunit of ribosomes catalyzes:
A) Protein formation B) Assembly of other units
C) Transcription of mRNA D) Peptide bond formation
85. Site of beta oxidation in prokaryotes:
A) RER B) SER C) Cytosol D) Mitochondria
86. Causative organism of ornithosis:
A) Chlamydia pneumonia B) Chlamydia psittaci
C) Corynebacterium diphtheria D) Mycobacterium tuberculosis
87. Genes of MHC located on this locus are responsible for allograft- rejection reactions in humans.
A) HLA B) H2 Complex C) MHC I D) CD8 Marker
88. The gas which contributes in greatest concentration to increase natural acidity of rain water:
A) NO₂ B) NO₃ C) CO₂ D) SO₂
89. Factor that does **not** contribute to Modern Synthetic Theory of Evolution:
A) Genetic recombination B) Mutation
C) Isolation D) Mutualism
90. Type of linkage that display some portion of non-parental genes.:
A) Partial linkage B) Complete linkage
C) Co dominant linkage D) Incomplete linkage
91. Diadromy is observed in
A) Birds B) Mammals C) Amphibians D) Fishes
92. An international environment protocol on substances that deplete the Ozone Layer:
A) Kyoto B) Cartagena C) Montreal D) Nagoya
93. Moriculture is a primary step followed in sericulture process where:
A) Rearing of muga worms
B) Production of mulberry silk
C) Cultivation of mulberry leaves
D) Metamorphosis of larvae into pupae.

94. Genetic mutation caused by a deletion or insertion in DNA sequence that shifts the way the sequence is read
 A) Frameshift mutation B) Inversion
 C) Deletion D) Dimer
95. DNA barcoding involves sequencing a short fragment of the mitochondrial
 A) Cytochrome c oxidase subunit I
 B) Cytochrome c reductase
 C) Succinate- CoQ reductase
 D) NADH-CoQ reductase
96. Insect pests causing damage to the coconut crops.
 A) *Leptocorisaoratoria* B) *Nilaparvatalugens*
 C) *Oryctes rhinoceros* D) *Oidiumheveae*
97. Effect of genetic drift caused due to reduction in population size
 A) Bottleneck effect B) Founder effect
 C) Punctuated equilibrium D) Micro evolution
98. Development of a bare site uninhabited by any organism.
 A) Nudation B) Invasion C) Coaction D) Stabilization
99. Instrument that measures exposure to ionizing radiation over a given period
 A) Radiator B) Liquid Scintillation unit
 C) Thermostat D) Dosimeter
100. (+)end-directed ATP dependent motor protein in microtubule.
 A) Kinesin B) Dynein C) Tubulin D) Nexin
101. Large ribonucleoprotein complex that assembles on a pre-mRNA to carry out RNA splicing:
 A) RISC B) SMC C) Spliceosomes D) SnRNA
102. Viscosity of liquids ----- rapidly with ----- in temperature.
 A) Decreases; increases B) Increases; decreases
 C) Decreases; decreases D) Increases; increases
103. Fluid that helps to clean the blood during dialysis:
 A) Hemodialyse B) Dialysate
 C) Peritoneal fluid D) Pure water
104. System that is regarded as exclusive part in pheromone detection:
 A) Vomeronasal B) Sensory
 C) Motor D) Microvili
105. FIRMA refers to:
 A) Fisheries Reconstruction Management Society
 B) Fisheries Resource Management Society
 C) Fisheries Resource Members of the Society
 D) Fisheries and Resource Management Association Cell

106. The three domain system was proposed by :
- A) Robert Whittaker B) Robert Brown
C) Carl Woese D) Carl Linnaeus
107. Vestigial organs are example of:
- A) Connecting link B) Homologous organs
C) Molecular evidences D) Analogous organs
108. Nitrifying bacteria that convert ammonia to nitrites:
- A) Nostoc B) Nitrosomonas
C) Nitrobacter D) Pseudomonas
109. Founder of modern ethologists and imprinting:
- A) Jane Goodall B) Konrad Lorenz
C) Ivan Pavlov D) Karl von Frisch
110. Match the following:
- | | |
|----------------------|--|
| a. Extinct | 1. High risk of extinction in the wild |
| b. Vulnerable | 2. Likely to become endangered soon |
| c. Endangered | 3. High risk of endangerment in the wild |
| d. Nearly threatened | 4. No known individuals remaining |
- A) a-1, b-2, c-3, d-4 B) a-3, b-1, c-2, d-4
C) a-4, b-3, c-1, d-2 D) a-1, b-3, c-4, d-2
111. Respiratory pigments found in molluscs and arthropods.
- A) Haemocyanin B) Haemerythrin
C) Chlorocruorin D) Myoglobin
112. Type of white blood cells having bilobed nucleus;
- A) Eosinophil B) Basophil C) Mast cell D) Macrophage
113. Chromatography technique which uses high pressure:
- A) TLC B) Affinity chromatography
C) HPLC D) Gas chromatography
114. Class of genetic elements that can 'jump' to different location on a genome:
- A) Tranporters B) Tranposons
C) Genes D) Alleles
115. Flexible amino acid stretches between Fab and Fc portion in antibody.
- A) Heavy region B) Light region
C) Sulphate region D) Hinge region
116. Choose the step **not** involved in DNA barcoding
- A) DNA extraction
B) PCR amplification
C) DNA sequencing and analysis
D) DNA accessibility

