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**MEMORY BASED PAPER**

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**CSIR NET LIFESCIENCES**



***INSTITUTE FOR ADVANCED STUDIES***

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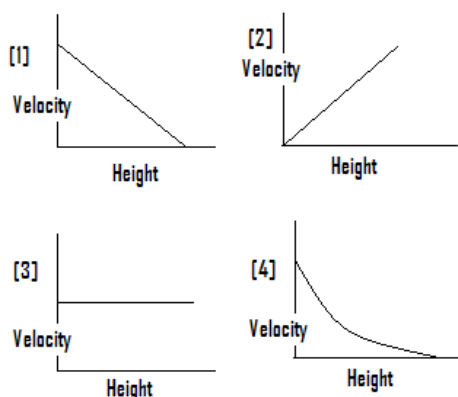
1. Mean life of a radioisotope is  $\left(\frac{1}{0.693}\right)$  second. The time required for decay of 10 mg radioactive substance into 2.5 mg will be

1.  $\left(\frac{1}{0.693}\right)$  sec                      2.  $\left(\frac{2}{0.693}\right)$  sec  
3. 1 sec                                      4. **2 sec**

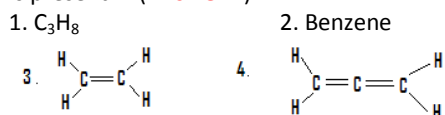
2. Path of a comet entering into our solar system cannot be

1. Circle                                      2. Parabola  
3. Eclipse                                      4. **Straight line**

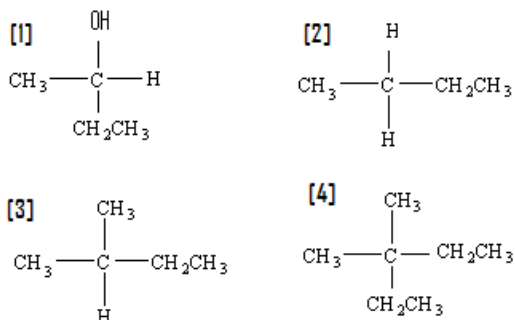
3. Correct representation of a graph for a pebble falling from a certain height would be (**Answer 1**)



4. Among the following carbon in sp hybridization is present in (**Answer 4**)



5. Among the following which is optically active (**Answer 1**)



6. Various rectangles can be drawn in circle of radius 'r'. The rectangle with maximum area will be

1.  $2\pi r^2$                                       2.  **$2r^2$**   
3.  $\sqrt{2} r^2$                                       4.  $2\pi r$

7.  $\sin^{-1} x \cos^{-1} x$ , for limit of x ranging from 0 to 1  
1.                                      2.                                      3.                                      4.

8. Which of the following are abiotic factors?

1. **temperature, rain fall, pH, Nutrients**  
2. temperature, rain fall, pH, Food  
3. temperature, rain fall, Pathogens  
4. temperature, rain fall, pH, viruses

9. Which is correct about spectra for H atom and  $He^+$  ion

1. Similar  
2. **Similar but  $He^+$  ion having four times more frequency**  
3. Similar but  $He^+$  ion having one/fourth frequency  
4. Similar but  $H^+$  ion having four times more frequency

10. A plane takes a flight  $50^\circ$  down to south from position  $80^\circ$  E and  $23^\circ$  N. Its destination will be

1.  $80^\circ$  E and  $96^\circ$  N                      2.  $80^\circ$  E and  $50^\circ$  N  
3.  $80^\circ$  E and  $96^\circ$  S                      4.  **$80^\circ$  E and  $27^\circ$  S**

11. A certain point is at eqi-distance from coordinates (-1,-1) and (0,4) . The point is located at

1. (0, 0)                                      2. **(0, 2)**  
3. (2, 0)                                      4. (-1, +1)

12. The path of ant travelling on minute arm of clock will be

1. Circle                                      2. **Spiral**  
3. Parabolic                                      4. Straight line

13. In herd of cattle there are 4 cows, 3 bulls and 1 calf. What is probability of correct parents of calf if a pair is randomly drawn from herd.

1. 1/7                                      2. 2/7  
3. 2/5                                      4. **1/12**

14. Ocean can have many dissolved substances in it. Solubility of substances in sea depends primarily on

1. Temperature                      2. Pressure  
3. **Temperature and Pressure**  
4. Independent of Temperature and Pressure

16. Among the following which is biopolymer

1. **Nucleic acid**                      2. Polystrene  
3. Polyethylene                      4. Nylon

16. The correct statement for  $0 \leq x \leq 1$

1.  $-1 \leq 0 \geq 1$                       2.  $1 \leq 0 \geq 1$   
3.  **$-1 < 0 < 0.75$**                       4.  $1 < 0 < 1$

14. Figure drawn from equation  $y^2=ax$  will be

1. eclipse
2. circle
3. sphere
4. **Parabola**

18. Among the following which will be basic in nature

1. Lemon juice
2. Ammonium chloride in water
3. **baking soda in water**
4. Vinegar in water

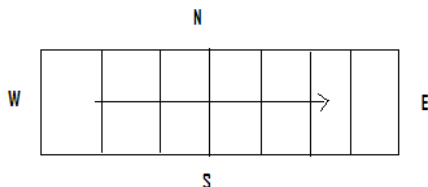
19. A metallic solid sphere is fully charged. The charge on sphere will be

1. **Only at surface**
2. Concentrated at centre
3. Evenly distributed
4. Unevenly distributed

20. Why air is cooler at high altitudes such as mountain than at lowlands

1. **Low density of air at altitudes**
2. Heat of air is due to reflected radiation from earth
3. Higher pressure at high altitudes
4. Lesser oxygen

21. The undisturbed layers of sedimentary rocks are deposited down from west to east as shown in figure. The order of layers from oldest to youngest will be



1. North to South
2. **East to west**
3. West to east
4. South to north

22. Which of the following is a radioactive substance?

1. **Th(SO<sub>4</sub>)<sub>2</sub>**
2. BeCl<sub>2</sub>
3. Na<sub>2</sub>SO<sub>3</sub>
4. MgSO<sub>4</sub>

23. Some times water droplet is seen falling from automobile combustion exhaust pipe. It indicates

1. **Efficient combustion of fuel**
2. Problem in combustion filters
3. Incomplete combustion of fuel
4. High humidity in environment

24. Which of the following is most electropositive atom?

1. **Cs**
2. Fr
3. Na
4. K

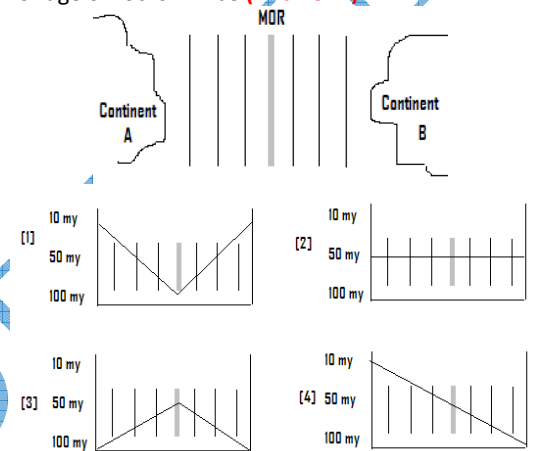
25. An object is placed 100 cm from a lens of focal length 50 cm. The image is formed at 'x' and magnification is 'm'. The value of x and m will be

1. 100, 100
2. 50, 100
3. 100, 50
4. **100, 1**

26. Which of the following can not be used as abrasive?

1. Diamond
2. Calcite
3. **Granite**
4. Topaz

27. The figure shows different rock of oceanic floor between two continents and MOR stands for mid oceanic ridge. The correct representation of graph for age of rocks will be (Answer 2)



28. A 10 gram ball is weighed at Ireland, Madrid, Delhi and Chennai (l, m, d, c respectively). The order of weight from maximum to lowest will be

1. l<m<d<c
2. **l>m>d>c**
3. l=m>d=c
4. l<m<d=c

29. If complete atmospheric gases are removed than what would be effect on global temperature of earth

1. **It will fall**
2. It will increase
3. No effect
4. Unstable temperature

30. There are two ecosystems A with high species diversity and B with low species diversity. Which statement is not correct for above ecosystems?

1. There will be more competition in ecosystem A
2. **Ecosystem B would be less affected by environmental stress as compare to Ecosystem A.**
3. Ecosystem A will have more extinction rate of species
4. Energy recycling is more efficient in ecosystem B

31. The following graph shows population growth curve for rabbit in certain ecosystem. The point x on graph after which population become stable represents



1. More competition
2. More mortality
3. Scarcity of food
4. Natural selection

32. Which of the following are not utilized in photosynthesis?

1. CO<sub>2</sub>, Chlorophyll, Sunlight, Carbohydrates
2. CO<sub>2</sub>, Chlorophyll, Sunlight
3. CO<sub>2</sub>, Chlorophyll, Sunlight, NADP
4. CO<sub>2</sub>, N<sub>2</sub>, Chlorophyll, Sunlight

33. Which of the following is not a function of blood?

1. Production of hormones like insulin
2. Repair of damaged parts
3. Provide immunity
4. Gaseous transport

34. Protective mechanism in which organism have color which blend with surrounding is termed as

1. Aposomatic coloration
2. Camouflaging
3. Mimicry
4. Blending

35. Correct arrangement from smallest to largest is

1. Nucleus<Cell<Tissue<Organ<System< Organism
2. Cell<Nucleus<Tissue<Organ<System< Organism
3. Nucleus<Cell<Tissue<System<Organ< Organism
4. Organism<System<Organ<Tissue<Cell<Nucleus

36. Sum of two binary numbers 1101 and 1011 will be

1. 10111
2. 11001
3. 11111
4. 10001

37. Time required for downloading a file of 2.4 Mb from a broadband connection having speed of 256 kbps will be

1. 1 hour
2. 30 minutes
3. 3 minutes
4. Lesser than 30 Seconds

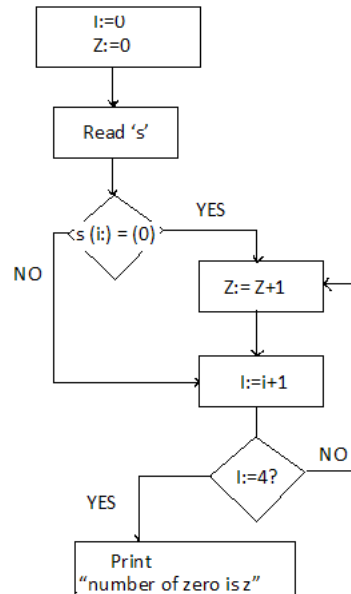
38. The program first to run on starting computer is

1. Bios booting
2. Checking keyboard
3. Checking power on
4. Operating system

39. The function of heat sink in PC is

1. To heat up CPU
2. To cool CPU
3. To test memory
4. To dissipate heat from chip

40. A string 's' with value 2010 B 80 C is entered in following program the output will be



1. 0
2. 1
3. 3
4. 4

41. In formaldehyde the pure  $\pi$  orbitals involved in bonding between C and O is

1. Only C
2. Both C & O
3. Only O
4. H, C and O

42. Retinoblastoma is one of the important proteins involved in cancer. The function of Rb is to hold the protein involved in

1. G1 arrest
2. G1/S promotion
3. DNA repair
4. Apoptosis

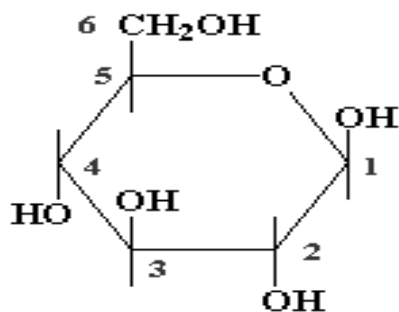
43. Vinblastin has been extensively used for treating cancer. This is an example of

1. Radiotherapy
2. Chemotherapy
3. Heat therapy
4. Surgery

44. The major function of type-III secretion by pathogenic bacteria is

1. Efflux of drugs
2. Release signal for quorum sensing
3. Release virulence factors
4. Release of competence factors

45. The structure of carbohydrate is shown as below. In polymer the bonding will be



1. 1,2  
3. 4,6

2. 1,4  
4. 2,4

46. Under what condition reaction will always occur

1.  $\Delta H < 0$  and  $\Delta S < 0$   
3.  $\Delta H > 0$  and  $\Delta S < 0$

2.  $\Delta H < 0$  and  $\Delta S > 0$   
4.  $\Delta H > 0$  and  $\Delta S > 0$

47. Which thermodynamic property cannot be directly measured in cell

1. Free energy  
3. Entropy

2. Enthalpy  
4. Temperature

48. An enzyme has Glu<sub>76</sub> and Asp<sub>52</sub> at active site. The pI for Glu is 5.6 and for Asp is 4.5. The enzyme function when Glu is in protonated form and Asp in deprotonated form. The pH where enzyme will show maximum activity will be

1. 4.5  
3. 10.1

2. 5.6  
4. 5.05

49. Which statement is correct for globular proteins

1. Always contain  $\alpha$  helix  
2. Always contain  $\beta$  sheets  
3. Contains both  $\alpha$  and  $\beta$  helix  
4. Contains more reverse turns

50. Which organelle has characteristic galactolipids in its membrane

1. Mitochondria  
3. Endoplasmic Reticulum  
4. Golgi body

2. Chloroplast

51. Which lipid is found exclusively on one face of membrane

1. Cholesterol  
3. Phosphatidylinositol  
4. phosphatidylethanolamine

2. Phosphatidyl choline

52. Chaperons (Hsp70) are absent in

1. Mitochondria  
3. Endoplasmic reticulum

2. Chloroplast  
4. Golgi bodies

53. Prolamellar bodies are present in

1. Etioplast  
3. Chloroplast

2. Leucoplast  
4. Chromoplast

54. Among the following which is not a function of hydrogen peroxide release during plant stress response

1. Crosslinking glycans in cell wall  
2. Lignin deposition  
3. Production of ethylene and salicylic acid  
4. Production of jasmonic acid

55. Promoters for RNA polymerase III are located at

1. +1 to +10  
2. -35 to -10

3. Within transcribed sequence

4. More than 100 bp upstream

56. Which of the following is necessary for transport of m-RNA from nucleus

1. Splicing  
3. 3'-Polyadenylation

2. 5'-Capping

4. Secondary structure

57. When tryptophan is in excess most of the times RNA polymerase dismounts after transcription of first 150 nt in trp operon. This is termed as

1. Antitermination  
3. catabolite repression

2. Attenuation

4. Feed back inhibition

58. Under which phase of bacterial growth bacteria increase in size but do not divide

1. Lag  
3. Stationary phase

2. Log

4. Death phase

59. Transport of ions across membrane depends on

1. Concentration gradient  
2. Membrane potential  
3. Concentration gradient and membrane potential both  
4. Independent of both

60. Uptake of mineral like zinc, magnesium and iron across membrane in plant is by

1. ABC transporter  
3. ZIP transporter

2. H<sup>+</sup>-co-transporter

4. ATP dependent transporter

61. If cell is not dividing (arrested in cell cycle) which repair mechanism will not occur

1. Recombination repair mechanism  
2. Excision repair mechanism  
3. Transcriptional coupled repair mechanism  
4. DNA synthesis annealing repair

62. For translation process besides eIF2, Met-t-RNA eukaryotic 80-S ribosome also requires  
 1. **GTP** 2. ATP  
 3. CTP 4. UTP
63. T<sub>4</sub> bacteriophage after infecting E. coli generally hacks host machinery for transcription of its own genes. It is done by  
 1. Degrading host RNA Polymerase  
 2. **Modifying host RNA polymerase**  
 3. Synthesis of own RNA polymerase  
 4. Degradation of host genome
64. Influenza virus enters host cell by  
 1. Cell fusion 2. **Endocytosis**  
 3. Exocytosis 4. Transcytosis
65. The vector responsible for Japanese Encephalitis is  
 1. **Culex tritaeniorhynchus** 2. *C. jenseni*  
 3. *C. pipiens* 4. *C. pusillus*
66. The virus inserted in genome can be recognized by  
 1. **FISH** 2. Microarray  
 3. Northern blot 4. Southern blot
67. Different strains of virus can be identified by  
 1. Fluorescence Microscopy  
 2. Electron microscopy  
 3. **PCR**  
 4. Observing symptoms of disease in patient
68. Bacterial two component system includes  
 1. **Sensory kinase and response regulator**  
 2. Sensory kinase and Phosphotransferase  
 3. Signal and receptor  
 4. Stimulus and response
69. Which of the following can be regarded as programmed cell death?  
 1. Death induced by toxin  
 2. Death by Inflammation  
 3. **Death of cell during normal development**  
 4. Death due Phagocytosis
70. During development homing of cell is mediated by  
 1. **Integrin** 2. Laminin  
 3. Cadherin 4. Selectin
71. Which of the following vaccine will not pose any problems in immune-compromised person  
 1. Measles 2. Mumps  
 3. BCG 4. **Pneumococcal**
72. Toll like receptors are a type of pattern recognition receptor (PRR) and recognize molecules that are broadly shared by pathogens but distinguishable from host molecules, collectively referred to as pathogen-associated molecular patterns. They are  
 1. Present only in mouse  
 2. Present on membrane of ER  
 3. **Are transmembrane protein**  
 4. Present on cytosolic face of plasma membrane
73. Function of CD4<sup>+</sup> T-lymphocyte is  
 1. **Secretion of cytokines**  
 2. Secretion of complement proteins  
 3. Production of antibodies  
 4. Destroys antigen
74. In regulative development, the prospective potency of cells  
 1. Equal to prospective fate  
 2. **More than prospective fate**  
 3. Lesser than prospective fate  
 4. Not determined
75. Morphylaxis can be defined as  
 1. Production of lost organ by division in remaining cell  
 2. **Reinitiation of cell division in existing cells, followed by repatterning of those cells**  
 3. Production of complete organism by single cell  
 4. Movement of organism toward stimulus
76. The grafting of the dorsal lip of the blastopore from an early Xenopus gastrula onto the ectopic ventral side of an early embryo will result in two complete embryos. Thus dorsal can be designated as  
 1. **Primary organizer** 2. Cytoplasmic determinant  
 3. Morphogen 4. Primitive
77. Three classes of genes A, B and C regulates the development of flower in Arabidopsis. If a loss-of-function mutation occurs in the B-type genes, what will be the composition of the flower whorls?  
 1. sepals-petals-stamens-carpels  
 2. sepals-sepals-stamens-carpels  
 3. **sepals-sepals-carpels-carpels**  
 4. petals-petals-stamens-stamens
78. Which of the following represents the gametophyte generation in plants  
 1. Ovule 2. Megaspore  
 3. **Embryo sac** 4. Egg

79. Which statement is correct for capacitation  
**1. is the maturation of mammalian spermatozoa after entering into oviduct of female.**  
 2. Meiotic division in egg after penetration of sperm  
 3. Maturation of egg in oviduct after fertilization  
 4. Maturation of spermatozoa in male body
80. The major function of cortical granules in cytoplasm of egg is to  
 1. Early block to polyspermy  
**2. Late block to polyspermy**  
 3. Allowing meiosis to complete  
 4. Helping in reorganization of sperm
81. Plants dissipate excess excitation energy as heat so as to protect from photo-oxidative damage. The mechanism is known as  
 1. Photo chemical quenching  
**2. Non -Photochemical quenching**  
 3. Photoinhibition  
 4. Merven effect
82. Major transport of nitrogen in xylem sap is in form of  
 1. Glutamate  
**2. Allantoin**  
 3. Glutamine  
 4. Ammonia
83. According to the polymer trap hypothesis small sugars such as sucrose are converted to raffinose and other larger oligosaccharides is loaded in phloem. Major site of synthesis if raffinose is  
 1. Sieve tube  
 2. Companion cells  
**3. Intermediary cells**  
 4. Transfer cells
84. E. coli based Humulin is a  
**1. Insulin**  
 2. Interferon  
 3. Growth factor  
 4. Disaccharide
85. *Agrobacterium tumefaciens* causes crown gall diseases in dicot plants. Which phytohormone genes are present of T-DNA  
**1. Auxin and cytokinin**  
 2. Auxin only  
 3. Cytokinin only  
 4. Cytokinin and brassicosteroids
86. Bending of coleoptiles tip of oat toward source of unilateral light of wavelength 454 nm is due to  
**1. Lateral distribution of auxin toward shaded area**  
 2. Polar transport of auxin  
 3. Degradation of auxin toward light  
 4. Synthesis of auxin in shaded area
87. Among the following which is a terpene  
 1. Chlorophyll  
**2. Lycopene**  
 3. Xanthophyll  
 4. Carotene
88. Among the following which plant removes heavy metal from water  
**1. Eichornia crassipes**  
 2. *Nymphia vishin*  
 3. *Pistia stratiotes*  
 4. *Salvia officinalis*
89. Transport of oxygen and CO<sub>2</sub> in blood is  
**1. O<sub>2</sub> in bound form and CO<sub>2</sub> in dissolved form**  
 2. CO<sub>2</sub> in bound form and O<sub>2</sub> in dissolved form  
 3. both in dissolved form  
 4. both in bound form
90. Unsynchronized signals in EEG are generated during  
 1. Deep Sleep  
 2. REM sleep  
 3. slow wave but quite sleep  
**4. Active and non-quiete**
91. If neurons are like electrical wire. Then the function of myelin sheath would be like  
**1. Insulator**  
 2. Charge conductor  
 3. Charge breaker  
 4. Charge dissipator
92. Among the following which groups of organisms are not uricotellic  
**1. Mammals**  
 2. Birds  
 3. Reptiles  
 4. Insects
93. If plant with genotype AaBb is self pollinated Where the A and B are not linked, then the probability of getting AABB genotype will be  
 1.  $\frac{1}{4}$   
 2.  $\frac{1}{8}$   
**3.  $\frac{1}{16}$**   
 4.  $\frac{1}{2}$
94. During gamete formation alleles which do not undergo recombination segregates during  
**1. Meiosis-I**  
 2. Meiosis-II  
 3. Mitosis  
 4. Cleavage
95. Two different mutant of drosophila gives a black body color. When these mutants are crossed all progeny have wild type color. It means mutation are  
 1. Co-dominant  
 2. Allelic  
**3. Non allelic**  
 4. Epistatic
96. Polygenic traits in crops can be identified by  
**1. QTL mapping**  
 2. Cluster analysis  
 3. Tandem array analysis  
 4. Gene mapping



97. A *Neurospora* Stp strain have start and stop growth behavior. The mutated gene was found to be on mitochondria. If male *neurospora* having stp mutation is crossed with wild type female *neurospora*. Phenotype of progenies will be

1. All Start and stop mutant
2. All wild type
3. Majority of Start and stop mutant
4. Majority of wild type

98. Under which condition recombination between genes will occur during conjugation

1.  $F^+ \times F^-$
2.  $F^+ \times HFr$
3.  $F^- \times HFr$
4.  $F \times F^-$

99. Inversion is leads to crossover suppression because

1. When crossing over occur within an inversion loop, leads to deleted and duplicated crossover chromosomes and inviability of zygotes carrying them.
2. No crossing over in the inversion loop
3. Crossing over lead to formation of all acentric chromosomes
4. Segregation of chromosomes in not normal

100. Unique character of family caryophyllaceae is presence of

1. Saponins
2. Glycosides
3. Terpenes
4. Alkaloids

101. Which of the following is not a core angiosperm

1. Amborellales
2. Nymphaeales
3. Austrobaileales
4. Magniolales

102. Phenetic classification is based on

1. Over all similarity of characters and gaps between variations
2. Phylogenetic relationship
3. Genetic relationship
4. Anatomical and embryological characters

103. Among the following which group of animal do not belongs to deuterostomes

1. Nematodes
2. Echinodermates
3. Brachyopoda
4. Chordates

104. Which of the following molecule can be utilized for establishing early evolutionary process

1. Ribosomal RNA
2. Mitochondrial DNA
3. Chloroplast DNA
4. Nuclear DNA

105. The family Dipterocarpaceae occurs in

1. Tropical rain forest
2. Temperate deciduous forests
3. Tropical deciduous forest
4. Semi-arid forest

106. Certain species of birds shows variation in beak size only when they are sympatric. This is example of

1. Character displacement
2. Natural Selection
3. Ecological variations
4. Mutations

107. Maximum growth rate is observed in logistic equation when the organisms are at

1. N excess than K
2.  $K/2$
3.  $N = K$
4. N is greater than K

108. Two species A and B were hybridized to form species C. Which of the following techniques can be used to confirm that the resultant species C is a hybrid

1. Morphological analysis
2. Molecular marker analysis
3. DNA hybridization
4. Phenetic cluster analysis

109. During the process of succession arrival of late successional stage depends on environment modified by earlier successional stage. The process is referred as

1. Co-evolution
2. Facilitation
3. Tolerance
4. Inhibition

110. The ecosystem having longest energy transfer time is

1. Tropical rain forest
2. Open Ocean
3. Desert
4. Temperate Deciduous forest

111. The term used for bubble like structure generated during early process of origin of life by Oparin is

1. Protobionts
2. Probiotic
3. Micelles
4. Coacervates

112. Which gas was absent during pre-biotic environment

1.  $CO_2$
2.  $CH_4$
3.  $O_2$
4.  $SO_2$

113. Maximum diversity of reptiles was during

1. Cretaceous
2. Jurassic
3. Ordovician
4. Triassic

114. Among the following which is not an assumption of Hardy-Weinberg rule

1. **Small population size** 2. Random mating  
3. No natural selection 4. No mutation

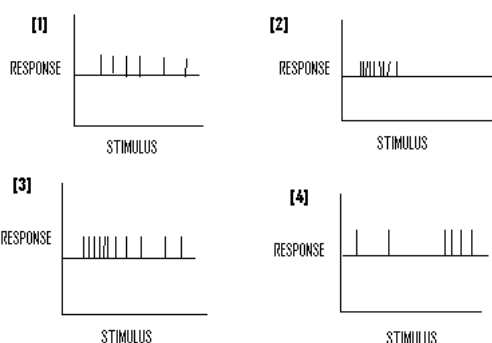
115. Wings of insects and birds have become flat, large and stream lined. This is an example of

1. **Convergent evolution** 2. Parallel evolution  
3. Divergent evolution 4. Co-evolution

116. The correct expression of Hamilton rule for the evaluation of altruism is [C = the cost of a behavioral act to the actor, b = the benefit of that act to a beneficiary, and r = the genetic relatedness between the actor and the beneficiary] where C is 0.5 and r = 0.5

1.  **$c < b.r$**  2.  $C > r.b$   
3. C must be more than 0.5 and r lesser than 0.5  
4. Benefits must be more than genetic relationship

117. Which graph correctly represents fast adaptation receptors (**Answer 2**)



118. Functional response of predators means

1. **linear relationship of number of prey consumed as a function of the density of the prey population**  
2. Regulation of predator population by availability of prey  
3. choosing prey depending on density of prey.  
4. number of prey consumed and the density of the prey population is an linear function of prey consumed by predators

119. Which of the following organism have been extensively used in generation of transgenic plants

1. ***Agrobacterium tumefaciens***  
2. *Bacillus thuringiensis*  
3. Baculo viruses 4. *E. coli*

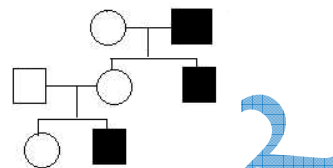
120. For making transgenic animals in fertilized egg the best place to insert trans-gene is in

1. **female pronuclei** 2. Male pronuclei  
3. Cytoplasm 4. Cleavage cells

121. Which of the following is not a Co-dominant marker

1. **RAPD** 2. RFLP  
3. SNP 4. SMPLs

122. The following pedigree represents the inheritance of a rare disorder.



Based on the above pedigree, what is the most likely mode of inheritance?

1. **Autosomal recessive** 2. X-linked recessive  
3. X-linked dominant 4. Y-linked dominant

123. The best technique for analyzing total m-RNA on cytoplasm of oocyte is

1. **Northern Analysis** 2. Southern Analysis  
3. DNA hybridization 4. RNA In Situ Hybridization

124. Among the following which radioisotope is not a  $\beta$ -emitter

1.  $C^{14}$  2.  **$I^{125}$**   
3.  $P^{32}$  4.  $H^3$

125. In sandwich ELISA the molecule captured is

1. Antibody 2. **Antigen**  
3. Enzyme 4. Nitrocellulose

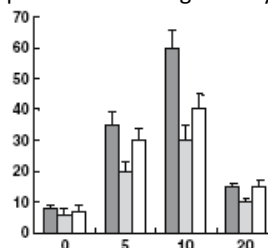
126. 'Taq' enzyme utilized in PCR is a

1. RNA polymerase 2. Reverse transcriptase  
3. **DNA polymerase** 4. Ligase

127. To determine variation in wing length of butterfly from five different places which would be best statistical test?

1. Chi-square 2. Student t-test  
3. **F-test** 4. Regression analysis

128. The graph shown below generally represents



1. Mean and Standard error  
2. **Mean and Standard deviation**  
3. Mode and Standard error  
4. Mean and Mode

129. Activity of single channel on neuron can be studied using

1. Patch clamp technique
2. Single neuron recording
3. ECG
4. EEG

130. Which of the following is not an extracellular matrix protein

1. Albumin
2. Elastin
3. Collagen
4. Fibronectin

131. Among the following highest assimilation efficiency is observed in

1. Herbivores
2. Carnivores
3. Microbivores
4. Omnivores

132. Cell with rigid lignified cell wall and dead protoplasm is

1. Collenchyma
2. Sclerenchyma
3. Chlorenchyma
4. Companion cells

133. To focus image the accommodation in lens of eye is mainly at

1. Due to change in surface of front of lens
2. Due to change in surface of back of lens
3. due to sphincter muscles which vary the curvature the both surface of lens
4. Due to type of ciliary muscles and fibres

134. Among the following which amino acid has two buffering zone

1. Glycine
2. Alanine
3. Glutamic acid
4. Glutamine

135. Among the following which amino acid donot absorbs wavelength of 250-300 nm

1. Cystine
2. Phenyl alanine
3. Tryptophan
4. Histidine

136. The efficient conversion of Fructose to Fructose-6 Phosphate occurs in

1. Liver
2. Muscles
3. Adipose Tissue
4. Intestine

137. Which statement is not true about *E. coli* DNA ligase

1. Do not link single stranded DNA
2. Links double stranded blunt ends
3. NAD is source of AMP as cofactor
4. Requires ATP as energy source

138. Which statement is correct regarding edge effect

1. They are poor in diversity
2. They are rich in diversity
3. Low competition
4. High predation pressure

139. In Sickle cell anemia the RBC are sickle shaped due to

1. Change in shape of hemoglobin in oxygen unbound form
2. Change in shape of hemoglobin in oxygen bound form
3. Loss of spectrin cytoskeleton protein
4. Due to loss of ATP synthesis

140. If organism is at very high risk of extinction according to IUCN, then it is kept in category of

1. Critically endangered
2. endangered
3. Rare
4. Vulnerable

**NOTE:** Institute is not responsible for any incorrect question or answer or a part of it. Paper is being prepared by IFAS with help of students of IFAS on their memory basis.

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