

IFAS

STUDY MATERIAL

MEMORY BASED PAPER

JUNE 2010

CSIR NET LIFESCIENCES



INSTITUTE FOR ADVANCED STUDIES

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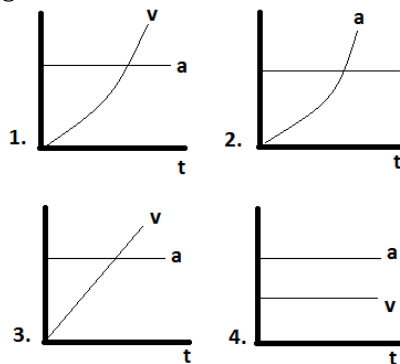
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MEMORY BASED: CSIR NET LIFESCIENCES PAER-I (JUNE 2010)

1. Copper sulphate in presence of excess of ammonia gives blue color. The blue is due to
1. Complex ligand formation
 2. Cuperic ions
 3. Cuprous ions
 4. Ammonium Sulphate
2. $\text{NH}_3 + \text{H}_2\text{O} \rightarrow \text{NH}_4\text{OH}$
What would be weight of ammonia used for complete utilization of one litre of water for formation of ammonium hydroxide
1. 1000 g
 2. 943.5 g
 3. 17.7 g
 4. 35 g
3. Moon centre do not show movement in its core, so it will result in
1. No gravitational force on moon
 2. Moon will not have its magnetism
 3. It will lack atmosphere
 4. It will be heavily bombarded with meteors
4. $\text{H}_2\text{O} \rightarrow \text{H}^+ + \text{OH}^-$. If $[\text{H}^+][\text{OH}^-] = 1 \times 10^{-14} \text{ M}^2$ and $\text{H}_2\text{O} = 55 \text{ M}$. Then ratio of non ionized water to ionized water will be
1. $1:1.8 \times 10^{-7}$
 2. $1:1.8 \times 10^{-6}$
 3. $1:1.8 \times 10^{-13}$
 4. $1:1.8 \times 10^{-16}$
5. A myopic person is also suffering from astigmatism, to correct his vision which lens must be used
1. Plane Concave lens
 2. Plane Convex lens
 3. Combination of concave and cylindrical lens
 4. Combination of convex and cylindrical lens
6. Four times the square of an integer is one greater than three times of an integer. The value of integer is
1. +4
 2. -4
 3. +1
 4. -1
7. Oxidation of copper occurs in
- A. $\text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu}$
B. $\text{Cu} + \text{AgNO}_3 \rightarrow \text{CuNO}_3 + \text{Ag}$
C. $\text{Fe} + \text{CuSO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + \text{Cu}$
D. $\text{Cu} + \text{AuCl}_3 \rightarrow 3\text{CuCl} + \text{Au}$
1. A and B
 2. B and C
 3. B and D
 4. A and D
8. Two dice are thrown having number 1 to 6. Maximum probability for getting sum of two dice will be
1. 4
 2. 6
 3. 7
 4. 8
9. Blue color of sky is due to
1. Scattering only
 2. Due to composition of sunlight
 3. Both
 4. Crompton Scattering
10. Three balloons are filled with Hydrogen (A), Helium (B) and CO_2 (C) respectively and then dipped in water, so order of buoyancy force operating on them will be
1. $f_1 > f_2 > f_3$
 2. $f_3 > f_2 > f_1$
 3. $f_1 = f_2 > f_3$
 4. $f_1 = f_2 < f_3$
11. Duration of day length in summer (Southern) hemisphere will
1. Decrease with increase in longitudes
 2. Increase with increase in longitudes
 3. Increase with increase in latitudes
 4. Decrease with increase in latitudes
12. Which statement is correct regarding ratio of half life of radioactive material to its mean life?
1. Will remain constant
 2. Will be always greater than one
 3. Will increase with increase in duration of half life
 4. Will depend on amount of radioactive material
13. An object is dropped from certain height. Among the following which graph correctly explain change in magnitude of acceleration and velocity before hitting the ground



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14. Frequency of incident light on photovoltaic material is 1.5 times of required threshold frequency for generation of electrons. If the frequency is halved and intensity is doubled what will happen

1. Electron emission will remain same
2. No emission of electrons
3. Electron emission will reduce to half
4. Electron emission will be double

15. A plane flying at certain altitude completes a complete turn around the earth at equator in 24 hours. What would be time taken to complete revolution around $60^\circ N$ of earth flying at same speed and altitude

1. 24 hrs
2. 18 hours
3. 12 hours
4. 6 hours

16. A plane is flying at height 10 km with speed of 1000 km/hour. What would be angular velocity of plane when it is observed by person standing on earth

1. 1 rad/sec
2. 36 rad/Sec
3. π rad/sec
4. $\pi/2$ rad/sec

17. $a^2+b^2+c^2 < 10$, where a, b and c are integers. The maximum possible ways of arrangement of integers such that statement is satisfied

1. 3
2. 4
3. 5
4. 6

18. For the equation $x^5 + x^4 + 2x^3 + 3x^2 + 4x + 5 = 0$, product of roots will be

1. 0
2. 16
3. 15
4. 12

19. The value of given matrix will be

$$\begin{bmatrix} 1 & 2 & 2 & 1 \\ 0 & 2 & 2 & 1 \\ 0 & 0 & 2 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

1. 0
2. 1
3. 2
4. 5

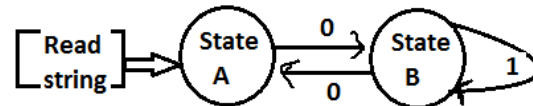
20. X, Y and Z are subsets of large set and X and Z are discrete (non-overlapping), then $(X \cap U \cap Z)^c$ will be

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21. A string of length six characters is to be arranged using codes R, G and B such as RRRRRR, RRGBBRR etc. In how many ways it can be done

1. 150
2. 650
3. 729
4. 216

22. Consider the following flow chart. If string starts from A than what be position at end of reading string 0011100011110000



1. State A
2. State B
3. 1/3 chance state A and 2/3 chance of state B
4. 2/3 chance of state A and 1/3 chance of state B

23. Consider the following program

```

for n=6
f(n)
while (n ≥ 1)
if (n ≤ 2)
return 1
else return f(n-1)*f(n-2)
  
```

The output of order of f(n) will be .

1. 6
2. 16
3. 4
4. 12

24. Fossil gives better idea for age of rocks because

1. Organic evolution is irreversible
2. Rocks are formed after fossil deposition
3. Rocks with fossils are stable
4. Fossils do not allow weathering of rocks

25. In atmosphere lowest concentration of CO_2 is measured during September. The major cause is

1. High utilization of CO_2 by plants during summer
2. CO_2 is more soluble in warm oceanic water
3. CO_2 sinks below earth
4. Pollution is lesser in September

26. Genome of virus is made up of

1. DNA
2. RNA
3. DNA or RNA
4. Proteins

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27. Which element is present in least amount by weight in human body?

1. H
2. C
3. N
4. P

28. The characteristic of organisms reaching first to barren Island are

1. Slow growth and small generation time
2. Slow growth and large generation time
3. Fast growth and small generation time
4. Fast growth and large generation time

29. Among the following which would be absent in the insects flying in night?

1. Color vision
2. Vibration Sensation
3. Rods
4. Black and white vision

30. Sucrose is composed of

1. Glucose and galactose
2. Fructose and galactose
3. Glucose and Fructose
4. Mannose and fructose

31. During replication of DNA during S phase of cell cycle DNA is duplicated, what happens to chromosome number

1. They also doubles
2. Remains same
3. Reduced to half
4. Reduced to one fourth

32. On selfing purple plants out of 100 plants in next generation 79 plants were purple and 21 plants were white. The conclusion which can be drawn is

1. One gene is involved
2. Two independent genes are involved
3. Two genes showing epistasis
4. Three genes are involved

33. Green house effect is observed due to absorption of

1. Primary radiations from sun
2. Secondary radiation coming from earth
3. CO₂
4. Water vapours

34. The out come following equation would be-

$$n \rightarrow \infty (1 + 2/n)^n$$

1. e²
2. e
3. e²+1
4. e²-1

35. Temperature decreases at the rate of 6° C per Km with altitudes. At what height there is least likeliness of water vapors to exist

1. 0.1 Km
2. 1 Km
3. 2 Km
4. 10 km

36. The perimeter of right angle isosceles triangle with unit area will be

1. 2
2. $\sqrt{2}$
3. $2\sqrt{2}$
4. $2+\sqrt{2}$

37. Among the following which is not a polymer?

1. Polysterene
2. Vinyl alcohol
3. Polyethylene
4. Rubber

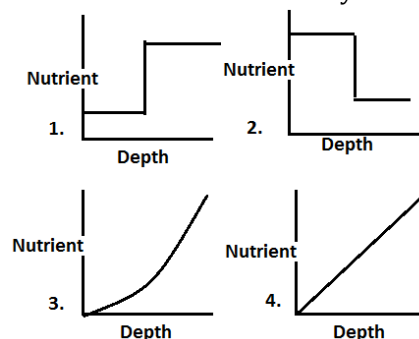
38. Which is isomer of C₂H₅OH is

1. CH₃CH₂CHO
2. CH₃CH₂-O-CH₃
3. CH₃-O-CH₃
4. CH₃CH₂COOH

39. Humans have originated in Africa is supported by the fact that

1. Less variation in DNA of African population
2. More variation in DNA of African population
3. More evidences of human fossil in Africa
4. Conserved fossils in Africa

40. In a lake low nutrients occur in upper strata due to consumption by algae while high nutrients are present at bottom due to activity of decomposer. Which is correct graphical representation of nutrients with depth for such lakes under steady state?



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PART-B

41. Motile zoospores occurs in

1. Basidiomycetes
2. Ascomycetes
3. Zygomycetes
4. Chytridiomycetes

42. Which of the following is vascular plant pathogen?

1. *Botrychium*
2. *Claviceps*
3. *Fusarium*
4. *Verbarium*

43. Origin of tropical weed *Eupatorium odoratum* is

1. Ethiopia
2. Peru
3. Mexico
4. Brazil

44. Which statement is correct for $\Delta G=0$

1. Reaction is in equilibrium
2. Operates only under constant P and V
3. Follows PdV equation
4. All of the above

45. Among the following maximum gross productivity is observed at

1. Boreal forests
2. Temperate deciduous
3. Temperate confers
4. Cold deciduous

46. Which biogeographical region covers maximum part of India?

1. Semi arid
2. Deccan Peninsular
3. Gangatic Plains
4. Himalaya

47. Tigers do not occur in Srilanka while they are seen India. While the leopards are seen in both India and Srilanka. The main reason is

1. Tigers are not good swimmers
2. Srilankans have removed tiger due to excessive hunting
3. India care more for tigers
4. Leopard originated before separation of India and Srilanka due to plate shifting

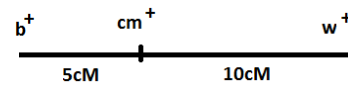
48. Chromatids appear in form of dyads during

1. Metaphase of Mitosis
2. Metaphase of Meiosis
3. Prophase of Mitosis
4. Anaphase of Mitosis

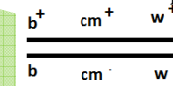
49. Meiosis produces n , $n+1$ and $n-1$ gametes. The probable reason is

1. Non-disjunction during metaphase I
2. Non-disjunction during metaphase-II
3. Non-disjunction during metaphase I and II
4. Non-disjunction during Anaphase I and II

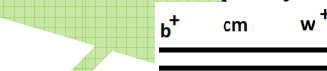
50. In *Drosophila* order of genes under investigation is as shown in figure.



If *Drosophila* with genotype



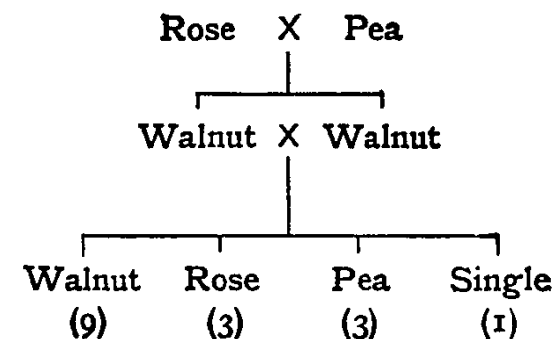
is test crossed what would be observed frequency of progenies with



genotype $\frac{b^+ \quad cm \quad w^+}{b \quad cm^+ \quad w}$ assuming zero interference?

1. 0.005
2. 0.5
3. 0.15
4. 1.5

51. A cross between hens with different comb shape was carried as shown in figure.



The conclusion which can be drawn is

1. Single gene is involved for comb shape
2. Two independent segregating genes are involved
3. Two genes are showing epistasis
4. Four independent segregating alleles are involved

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52. Mendel during his experiment on garden pea observed F_2 ratio of 3:1 on selfing round seed plants where 3 were round and 1 was wrinkled. If all round seed plants are selfed to raise the F_3 generation the observed ratio will be

1. half of plants with round seed and rest with wrinkled seed
2. $\frac{3}{4}$ of plants with round seed and $\frac{1}{4}$ with wrinkled seeds
3. All plants with round seeds
4. $\frac{1}{3}$ of plants with round seeds and $\frac{2}{3}$ of plants bearing round and wrinkled seeds

53. Darwinian evolutionary fitness is measured in turn of

1. Good health
2. Ability to fight with others
3. Reproductive success
4. Lesser mutations

54. Hardy-Weinberg law will NOT operate under conditions, when

1. 3 alleles are involved
2. Weak selection of one of the allele
3. Skewed sex ratio
4. Mutated allele is not involved in sexual selection

55. Reversal of sexual dimorphism is observed under condition

1. Strong female choice
2. Skewed sex ratio
3. Number of males are very low
4. Male and females changes their roles

56. The donor and acceptor of electron for $cytb/f_6$ are

1. PQ and UQ
2. UQ and Cyt C
3. UQ and PC
4. PQ and PC

57. The chemical salicylic hydroxamic acid inhibits

1. Cytochrome oxidase
2. Alternate oxidase
3. ATP synthase
4. NADH-dehydrogenase

58. Phytochromes involved in red/far-red response are dimeric chromoproteins. The two sub-units of phytochromes are linked with

1. PAS domain
2. PTB domain
3. Hinge region
4. Kinase domain

59. Which of the following DONOT occur during seed development?

1. Accumulation of storage proteins
2. Synthesis of LEA proteins
3. Desiccation
4. Synthesis of Gibberlic acid

60. In signal transduction pathway of which plant hormones genes 'rht', 'spy', 'gay' are associated

1. Auxin
2. Gibberlic acid
3. Abscicic acid
4. Ethylene

61. Most of DNA binding protein binds to DNA by particular motif to modulate gene expression. Genes which are under regulation of gibberlic acid have GRE where, GREB binds. The motif in GREB is

1. Leucine Zipper
2. bZIP
3. Zinc finger
4. Homeodomain

62. In plants gene 'sepallata' is NOT involved in formation of organ

1. Sepals
2. Petals
3. Stamens
4. Carpels

63. The lateral separation of amphibian embryo at two celled stage will result in

1. Identical twins
2. Two embryos joined at belly region
3. Single embryo
4. Two embryos missing various organs

64. If hydra is fragmented into various parts, separate group of cells repattern themselves into various small hydra. Such an mode of development is termed as

1. Regeneration
2. Morphlaxis
3. Epimorphogenesis
4. Morphylaxis and epimorphogenesis

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65. An embryo lacking bicoid is injected with bicoid m-RNA at middle portion. It will result into

1. Two heads and no tarsons
2. Head in middle and tarsons at both end
3. No head and Tarson at both ends
4. Normal phenotype

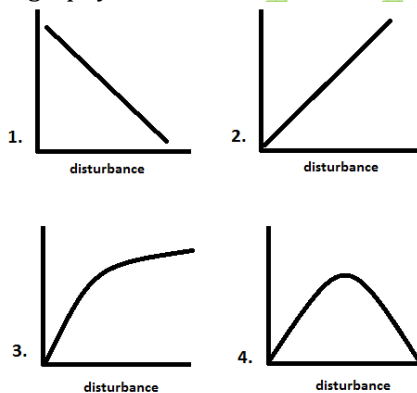
66. Which of the following is a species specific protein in sea urchin which plays important role in recognition during acrosomal reaction

1. Bindin
2. Avidin
3. Fertilin
4. Cortical granule

67. In an experimental population the birth rate is 18 per 1000 and death rate is 14 per 1000. Size of population is 10,000 at time, 't', then what will be size of population at time 't+1'

1. 10,000
2. 10,040
3. 10,140
4. 11,040

68. Which is correct graphical representation of effect of disturbance on species diversity as per island biogeography?



69. Which statement is correct for r-selected species?

1. Large number of progeny with large size
2. Small number of progeny with large size
3. Large number of progeny with small size
4. Small number of progeny with large size

70. To explain origin of life the first biomolecule generated under lab condition were

1. Amino acids
2. Nucleic acids
3. Carbohydrates
4. Lipids

71. Dinosaurs become extinct during

1. 1.6 billion year ago
2. 6.5 billion year ago
3. 6.5 million year ago
4. 65 million year ago

72. When a new sapling is transferred to soil, roots have very loose contact with soil particles and it suffers from water stress because of

1. Cavitation
2. Positive hydraulic Pressure
3. Capillary action
4. Loss of water from roots to soil

73. K_m for enzyme is equal to where

1. $V_0 = V_{max}$
2. $2V_0 = V_{max}$
3. $4V_0 = V_{max}$
4. $V_0 = 2 V_{max}$

74. During regulation of trp operon by attenuation there is

1. Immature termination of translation
2. Immature termination of transcription
3. Termination of replication
4. Ribosome fails to read transcript

75. In an experimental approach trp operon and lac operon were fused. Under what condition there would be expression of β -galactosidase?

1. Low lactose and glucose
2. High lactose and glucose
3. Low tryptophan
4. High tryptophan

76. Which selectable marker gene is routinely used for selection of transgenic plant?

1. Amphotericin
2. Tetracyclin
3. Hygromycin
4. Carbenicillin

77. Which microbe has been used against insect plant pathogens?

1. *Agrobacterium tumefaciens*
2. *Agrobacterium rhizogenes*
3. *Bacillus thuringiensis*
4. *Fusarium nudum*

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78. Which instrument is used to measure electrical activity of heart?

1. Electrocardiograph
2. Electrocardiogram
3. Sphygmomanometer
4. Electroencephalogram

79. Flow cytometer is used to measure the number of

1. Cells
2. DNA
3. RNA
4. Proteins

80. In bioinformatics for structural proteomics, the structure of protein can be determined from

1. PDB
2. EMBL
3. NIH
4. Gene bank

81. How many H atoms would be replaced CCl_4 in presence of ethanol during NMR spectrum

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

82. Polygalactourinidase (PG) antisense RNA is used in reference to which phenomenon

1. Seed setting
2. Herbicide resistance
3. Viral resistance
4. Fruit Ripening

83. Which of the following diseases or pathogen have been completely eradicated from India?

1. Small pox, polio
2. Yellow fever, Plaque
3. Small pox, Guinea worm
4. Sleeping sickness, yellow fever

84. A person suffering from glucose-6-phosphate dehydrogenase deficiency are found to be resistant to

1. Plasmodium
2. Fungus
3. Leishmania
4. Bacteria

85. Which of the following cell has been proved in elucidation of lipid bilayer of plasma membrane?

1. Bacterial cell
2. Virus
3. RBC
4. Kidney Cell

86. In HIV diagnosis technique based on western blotting, the patient sample is screened for

1. Antigen
2. Antibody
3. Virus outer coat protein
4. Virus

87. In which cancer treatment erb-B antibodies are used

1. Breast
2. Oral
3. Prostrate
4. Lung

88. Bcl-2 and Bax proteins involved in apoptosis are

1. Proapoptotic and anti-apoptotic
2. Both proapoptotic
3. Both anti-apoptotic
4. Anti-apoptotic and Pro-apoptotic

89. *Vif* gene is one of the important regulatory gene in lifecycle of HIV virus. It was observed that HIV virus with mutated *Vif* gene fails to culture of normal T-helper cells. The main reason is

1. *Vif* gene helps in reverse transcription process
2. *Vif* gene helps in transport of HIV genome to nucleus
3. *Vif* gene helps in insertion of viral genome into host genome
4. *Vif* product targets the enzyme responsible for hypermutation to ubiquitination and cellular degradation

90. Nick translation means

1. Translation by cytosolic ribosome
2. Translation of protein from stalled sites
3. Replication by DNA polymerase I after removing RNA primers
4. Replication of DNA by DNA polymerase I from nicks produced by DNase treatment

91. According to Holiday model if markers are present outside of crossover point, then recombinant molecules would be generated when

1. There is no resolution
2. Always recombinant would be produced
3. Nick is on outer strand during resolution
4. Nick is on inner strand during resolution

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92. *E. coli* cells were transformed with plasmid carrying tetracycline resistance gene and later on plated on LB medium and various colonies were observed but same number of colonies were observed for control non transformed *E. coli* cells. The probable reason is

1. No transformation has occurred
2. Bacteria are plated just after heat shock and incubation with plasmid
3. *E. coli* cells were already resistance to tetracycline
4. Wrong plasmid was used

93. Which antibiotic is responsible for premature termination of translation in bacteria?

1. Tetracycline
2. Chloramphenicol
3. Penicillin
4. Puromycin

94. Among the following which DNA polymerase lacks proof reading activity?

1. DNA polymerase α
2. DNA polymerase δ
3. DNA polymerase ϵ
4. DNA polymerase α and ϵ

95. Which statement is correct for archaebacteria?

1. lacks histone protein
2. have 9+2 arrangement in flagella
3. lacks introns in genes
4. Cell wall is made up of peptidoglycan

96. In a m-RNA immature termination occurs from codon UAA. Which of the following transition mutation will lead to its reversal

1. Change at first U
2. Change at first A
3. Change at second A
4. All of the above

97. The major function of surfactant protein secreted by lungs is

1. donot allow growth of bacteria
2. Stops entry of dust particles into lungs
3. Keeps alveoli inflated
4. Helps in absorption of oxygen

98. In brain meninges are absent at

1. Dura mater
2. Pia mater
3. Grey mater
4. Arachnoid mater

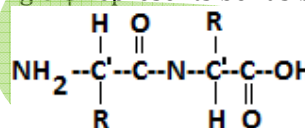
99. Which phylum is characterized by absence of body symmetry, no tissue or organ and lack of nervous system?

1. Porifera
2. Cnidaria
3. Pteniphora
4. Rhyzopoda

100. Secondary structure of RNA is stabilized by hydrogen bonding between

1. GC and AU
2. GC and AT
3. GC, AU and GU
4. GC only

101. In the diagram for peptide shown below, angle ϕ represents bonds between



1. N - C'
2. C' - C
3. C - O
4. N - H

102. On a Ramachandran plot glycine, D-Alanine and D-Aib were plotted. Which statement is correct

1. D-alanine will occupy greatest area
2. All amino acids will occupy same area
3. D-alanine and glycine will occupy similar area
4. Smallest are would be occupied by D-Aib

103. Which of the following enzyme of nitrogen metabolism is located in plastid?

1. Nitrate reductase
2. Nitrite reductase
3. Aspartate synthetase
4. Nitrogenase

104. ABC transporter are NOT involved in

1. Transport of chloroplast content for degradation in vacuole
2. Accumulation of pigment in plant vacuole
3. Secretion of matting factor in yeast
4. Uptake of phosphate by bacteria

105. Which plant has been used in phytoremediation for uptake of cadmium from contaminated soil?

1. *Helianthus annuus*
2. *Brassica juncea*
3. *Silene vulgaris*
4. *Oscimum basilicum*

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106. What is basic assumption for using molecular clocks for estimation of molecular evolution?

1. Rate of neutral mutation is constant over time
2. Rate of evolution is constant over time
3. DNA do not show variations among organisms
4. Proteins are better marker for phylogeny as compare to DNA

107. In an experiment bacterial cell was removed using enzymatic methods. It was observed that on culturing such bacteria, for many generations cell wall was not seen. It is proof to

1. Inheritance of acquired character
2. Recessive mutation
3. Reverse mutation
4. Adaptive mutation

108. Most of nutrients are absorbed from intestine by co-transport. Which of the following mineral plays important role in transport of amino acids across intestine epithelium?

1. K
2. Ca
3. Na
4. Na and Ca both

109. Action potential is fired after threshold stimulus but once the nerve impulse there is the interval during which a second action potential cannot be initiated, no matter how large a stimulus is applied. This gap is termed as

1. Absolute refractory period
2. Relative refractory period
3. Threshold period
4. Resting potential

110. If we compare convoluted tubule and ascending limb of Henle of nephron. The fluid is

1. Isotonic and hypotonic
2. Dilute and hypotonic
3. Dilute and isotonic
4. Isotonic and hypertonic

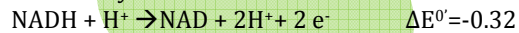
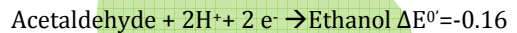
111. Which statement is NOT correct regarding brown fat?

1. It is present in lesser amount in new born baby
2. It produces little ATP
3. It produces more heat
4. In Mitochondria electron transport chain and phosphorylation are uncoupled

112. Which molecule do not have SP³ hybridization?

1. CH₄
2. NH₃
3. H₂O
4. CH₂O

113. Consider the following coupled reaction



The transfer of electron is from

1. NAD to acetaldehyde
2. NADH to ethanol
3. NADH to acetaldehyde
4. Ethanol to NADH

114. For final processing of antigen macrophage after phagocytosis directs engulfed material to

1. Lysosome
2. Proteasome
3. Peroxisome
4. ER

115. In a continuous fermenter if input supply is decreased, what would be effect on standing biomass and rate of production?

1. Standing biomass decrease and productivity increase
2. Standing biomass increase and productivity increase
3. Both decreases
4. Both increases

116. Uricotellism is an adaptation for

1. Conserving water
2. Conserving salt
3. High altitudes
4. Marine habitats

117. In prokaryotes which subunit of RNA polymerase is released after initiation process?

1. α
2. β
3. β'
4. σ

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118. In prokaryotes IF2 binds to

1. Initiator t-RNA and GTP
2. Amino acyl t-RNA and ATP
3. Ribosome and m-RNA
4. m-RNA and 30 S subunit of ribosome

119. In *E. coli* gal⁺ and bio⁺ genes are located very near to each other on genome. A bacterium with F' gal⁺ on conjugation with F⁻ will lead to diploid condition for

1. gal only
2. bio only
3. gal and bio both
4. *E. coli* will always remain haploid

120. Hypertrophy in anterior pituitary in adults leads to

1. Gigantism
2. Dwarfism
3. Acromegly
4. Cretinism

121. Which portion of antibodies is recognised by Fc receptor of macrophage?

1. λ-Chain
2. κ-Chain
3. Heavy chain
4. J- chain

122. Major function of lymphatic system is

1. Acquired immunity
2. Innate immunity
3. Maintain fluid balance
4. Phagocytosis

123. Aggregation of myxamoeba into slime mould during formation of fruiting body is an example of

1. Multicellularity
2. Social behaviour
3. Embryonic development
4. Pattern formation

124. Anterior-posterior limb axis and dorsal ventral nerve plate is determined by

1. Bicoid
2. Sonic hedgehog
3. Pax3
4. Cactus

125. Which is NOT a strategy for adaptation to dry environment?

1. C₄ /CAM cycle
2. Low stomatal conductance
3. High hydroaulic conductance
4. High root to shoot ratio

126. On basis of statement given below the mode of inheritance is

- Mostly males are sufferer of disease
- All male child developed from affected mother are diseased
- Female develop disease only when her father is diseased and mother is carrier

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

127. Which is correct explanation for sibling species?

1. Species which are morphologically different but can interbreed
2. Species which look morphologically similar but reproductively isolated
3. Species which are morphologically different and reproductively isolated
4. Species which are morphologically alike and can interbreed

128. Which is NOT true in a process of succession from pioneering stage to climax stage?

1. Biomass increases
2. Food chain to food web
3. Wide niche
4. Dependency on detritious chain increases

129. Which enzyme is used in estimation of glucose from blood sample using biosensors?

1. Alkaline phosphatase
2. Glucose oxidase
3. Glucokinase
4. Glycoen phosphorylase

130. Which is best method for screening of plants for bioprospecting?

1. Ecological studies
2. Ethno driven
3. Comparison of DNA sequence
4. Comparison of protein sequence

131. Minimum resolution of electron microscope is

1. 0.2 mm
2. 20 nm
3. 100 nm
4. 0.2 nm

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132. In which case statistical approach analysis of variance can be applied

1. Productivity of lake is not significantly different from other five lakes
2. Body weight is dependent on person height
3. Diabetes dependent on concentration of insulin in blood
4. Seed weight is influenced by calcium in soil

133. Linking number of DNA is 9 with writhe -1, then number of twist is

1. 10
2. 9
3. 11
4. 12

134. The precursor for most of phenolic secondary metabolites is

1. Phenyl alanine
2. Isopentyl pyrophosphate
3. Mevalonate
4. Geranyl phosphate

135. Which statement explains the phenomenon of character displacement?

1. Organism of different species are morphologically similar in different habitat but looks different where they live together
2. Organism of different species look different where habitat donot overlap while look entirely similar where their habitat overlaps
3. Organisms phenotypically similar are genetically different
4. Organism develops various new characters in different habiatats

136. Root cap cells originate from

1. Root epidermis
2. Columella cells
3. Quiescent center
4. Vascular cambium

137. The function of telomerase is

1. Synthesis of DNA at ends of chromosome
2. Synthesis at RNA primers
3. Replication of normal DNA
4. Reverse transcriptase of causing cancer

138. Which of the following is a hydrated polymer?

1. Cellulose
2. Pectin
3. Lignin
4. Callose

139. Incorrect blood transfer to person leads to death of a blood receptor. The major cause of death is

1. Agglutination of RBC
2. Precipitation of RBC in coronary arteries of heart
3. Failure of kidney due to excess breakdown product of RBC
4. Hyperthermia due to release of pyrogens

140. Hydostatic opening of stomata is due to

1. Low water potential in mesophyll cells
2. Movement of K ions into guard cells
3. Movement of water into guard cells
4. Decreased concentration of ABA

Note: This paper is memory based and prepared with the help of Ifas students who appeared for this exam. Institute is not responsible for any incorrect question or part of it. Answer key have been prepared by faculty of IFAS as question were available to them. This is not official key for CSIR NET lifesciences exam. The aim is to help the students to check their performance.

We will feel very happy if any corrections are suggested. Looking forward for positive responses.

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ANSWER KEY ON NEXT PAGE

ANSWER KEY

1	1	21	3	41	4	61	1	81	3	101	1	121	3
2	2	22	1	42	3	62	1	82	4	102	-	122	3
3	2	23	-	43	3	63	1	83	3	103	2	123	1
4	4	24	1	44	4	64	2	84	1	104	1	124	2
5	3	25	1	45	2	65	2	85	3	105	2	125	2
6	3	26	3	46	2	66	1	86	2	106	1	126	1
7	3	27	4	47	4	67	2	87	1	107	1	127	2
8	3	28	3	48	2	68	4	88	4	108	3	128	3
9	1	29	1	49	2	69	3	89	4	109	1	129	2
10	1	30	3	50	-	70	1	90	4	110	3	130	2
11	3	31	2	51	3	71	4	91	3	111	1	131	4
12	1	32	1	52	4	72	1	92	3	112	4	132	1
13	1	33	2	53	3	73	2	93	4	113	2	133	1
14	2	34	1	54	2	74	2	94	1	114	1	134	1
15	2	35	4	55	2	75	3	95	1	115	2	135	1
16	2	36	4	56	4	76	3	96	1	116	1	136	3
17	-	37	2	57	2	77	3	97	3	117	4	137	1
18	-	38	3	58	3	78	2	98	3	118	1	138	2
19	-	39	1	59	4	79	1	99	4	119	1	139	1
20	-	40	3	60	2	80	1	100	3	120	3	140	1

Suggestions are welcome.....

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