



Sky Tutorials

fly beyond the sky...

IIT-JEE | NEET | Foundation

NEET

Time: 200 Minute

M.M. 480

ALL INDIA SKY TEST SERIES

Saarthak Batch - Neet

Date : 20/08/2023

SYLLABUS

PHYSICS	CHEMISTRY	BOTANY	ZOOLOGY
Ray Optics, Current Electricity	Nitrogen + Oxygen family, G.O.C.	Previous + Molecular Basis of inheritance	Previous + Biotech, Principles & Process

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

INSTRUCTIONS:

1. This Question paper is divided in to four parts physics, chemistry, botany, zoology Questions paper you have received contains **ALL THE QUESTIONS** in each Part.
2. **In each part all 30 questions are compulsory**, Each Question has four choices (a), (b), (c), (d) out of which **only one is correct & Carry 4 marks each** 1 mark will be deducted for each wrong answer.

GENERAL INSTRUCTION

1. Use only **blue/black pen (avoid gel pen)** for darkening the bubble.
2. Indicate the correct answer for each question by filling appropriate bubble in your **OMR** answer sheet.
3. The answer sheet will be checked through computer hence, the answer of the question must be marked by -shading the circles against the question by dark **blue/black pen**
4. Blank papers, Clipboards, Log tables, Slide Rule, Calculator, Cellular Phones Papers and Electronic Gadgets in any form are **not** allowed to be carried inside the examination hall.

Name of the candidate: _____

Signature of the candidate: _____ Signature of the invigilator: _____

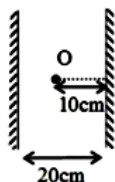
PHYSICS

SECTION - A

1. A ray of light is incident at an angle of 60° on one face of a prism of angle 30° . The emergent ray of light makes an angle of 30° with incident ray. The angle made by the emergent ray with second face of prism will be:
(a) 0° (b) 90° (c) 30° (d) 45°

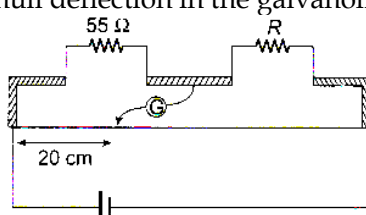
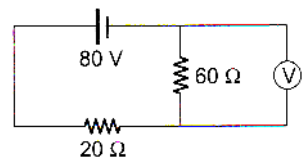
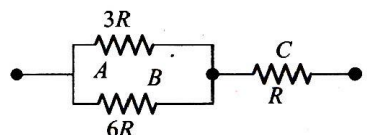
2. In a pond of water, a flame is held 2m above the surface of the water. A fish is at depth of 4m from the water surface. Refractive index of water is 1.33. The apparent height of the flame from the eyes of the fish is
(a) 5.5 m (b) 6 m
(c) $8/3$ m (d) $20/3$ m

3. Two plane mirrors are kept parallel at 20 cm from each other. A point object O is placed exactly in between them. Calculate distance between second image formed by two mirrors.



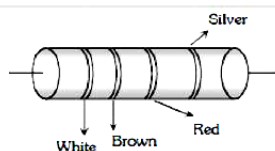
- (a) 80 cm (b) 60 cm
(c) 40 cm (d) 10 cm
4. A point object moving with velocity $\vec{v} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ in front of a moving plane mirror whose normal is along x-axis. The mirror is moving with velocity $\vec{v}_m = \hat{i} - 4\hat{j} + 2\hat{k}$. Find the velocity vector of image.
(a) $-5\hat{j}$ (b) $-3\hat{j} + 4\hat{k}$
(c) $-4\hat{j} + 2\hat{k}$ (d) $2\hat{i} - 3\hat{j} + 2\hat{k}$
5. A ray of light is incident normally on one of the faces of prism of apex angle 30° and refractive index $\sqrt{2}$. The angle of deviation of the ray is.
(a) 30° (b) 45° (c) 15° (d) N.O.T.
6. A thin glass prism of $\mu = 1.5$ is immersed in water of $\mu = 1.33$. The ratio of deviation of the ray in water to that in air for the same prism is.
(a) 1 : 4 (b) 1 : 2 (c) 1 : 8 (d) 1 : 3
7. A fish looking a through the water sees the outside world contained in circular horizontal. If the refractive index of water is $\frac{4}{3}$ and the fish is 12 cm below the surface, the radius of this circle (in cm) is.
(a) $36\sqrt{7}$ (b) $\frac{36}{\sqrt{7}}$ (c) $36\sqrt{5}$ (d) $4\sqrt{5}$

8. The field view is maximum for.
(a) Plane mirror
(b) Concave mirror
(c) Convex mirror
(d) Cylindrical mirror
9. When a ray is refracted from one medium into another medium, the wavelength changes from 6000 \AA to 4000 \AA . The critical angle for a ray from second medium will be.
(a) $\cos^{-1}\left(\frac{2}{3}\right)$ (b) $\sin^{-1}\left(\frac{2}{3}\right)$
(c) $\tan^{-1}\left(\frac{3}{2}\right)$ (d) $\sin^{-1}\left(\frac{2}{\sqrt{13}}\right)$
10. How does the angle of minimum deviation of a glass prism vary, if the incident violet light is replaced with red light?
(a) Increases (b) No change
(c) Decreases (d) None of these
11. A ray of light is incident normally on a plane mirror. The angle of reflection will be
(a) 0°
(b) 90°
(c) Will not be reflected
(d) None of the above
12. A plane mirror makes an angle of 30° with horizontal. If a vertical ray strikes the mirror, find the angle between mirror and reflected ray
(a) 30° (b) 45° (c) 60° (d) 90°
13. A man of length h requires a mirror, to see his own complete image of length at least equal to
(a) $\frac{h}{4}$ (b) $\frac{h}{3}$ (c) $\frac{h}{2}$ (d) h
14. A convex mirror of focal length f forms an image which is $\frac{1}{n}$ times the object. The distance of the object from the mirror is
(a) $(n-1)f$ (b) $\left(\frac{n-1}{n}\right)f$
(c) $\left(\frac{n+1}{n}\right)f$ (d) $(n+1)f$
15. The relation between the linear magnification m , the object distance u and the focal length f is
(a) $m = \frac{f-u}{f}$ (b) $m = \frac{f}{f-u}$
(c) $m = \frac{f+u}{f}$ (d) $m = \frac{f}{f+u}$

16. The minimum distance between the object and its real image for concave mirror is
(a) f (b) $2f$ (c) $4f$ (d) Zero
17. An object is placed at 20 cm from a convex mirror of focal length 10 cm . The image formed by the mirror is
(a) Real and at 20 cm from the mirror
(b) Virtual and at 20 cm from the mirror
(c) Virtual and at $20/3\text{ cm}$ from the mirror
(d) Real and at $20/3\text{ cm}$ from the mirror
18. An object 2.5 cm high is placed at a distance of 10 cm from a concave mirror of radius of curvature 30 cm . The size of the image is
(a) 9.2 cm (b) 10.5 cm
(c) 5.6 cm (d) 7.5 cm
19. A point object is placed at a distance of 10 cm and its real image is formed at a distance of 20 cm from a concave mirror. If the object is moved by 0.1 cm towards the mirror, the image will shift by about
(a) 0.4 cm away from the mirror
(b) 0.4 cm towards the mirror
(c) 0.8 cm away from the mirror
(d) 0.8 cm towards the mirror
20. An object of length 6 cm is placed on the principle axis of a concave mirror of focal length f at a distance of $4f$. The length of the image will be
(a) 2 cm (b) 12 cm (c) 4 cm (d) 1.2 cm
21. A concave mirror of focal length f (in air) is immersed in water ($\mu = 4/3$). The focal length of the mirror in water will be
(a) f (b) $\frac{4}{3}f$ (c) $\frac{3}{4}f$ (d) $\frac{7}{3}f$
22. A light wave has a frequency of $4 \times 10^{14}\text{ Hz}$ and a wavelength of 5×10^{-7} meters in a medium. The refractive index of the medium is
(a) 1.5 (b) 1.33 (c) 1.0 (d) 0.66
23. A vessel of depth $2d\text{ cm}$ is half filled with a liquid of refractive index μ_1 and the upper half with a liquid of refractive index μ_2 . The apparent depth of the vessel seen perpendicularly is
(a) $d\left(\frac{\mu_1\mu_2}{\mu_1 + \mu_2}\right)$ (b) $d\left(\frac{1}{\mu_1} + \frac{1}{\mu_2}\right)$
(c) $2d\left(\frac{1}{\mu_1} + \frac{1}{\mu_2}\right)$ (d) $2d\left(\frac{1}{\mu_1\mu_2}\right)$
24. The angle of minimum deviation for a prism is 40° and the angle of the prism is 60° . The angle of incidence in this position will be
(a) 30° (b) 60° (c) 50° (d) 100°
25. Angle of a prism is 30° and its refractive index is $\sqrt{2}$ and one of the surface is silvered. At what angle of incidence, a ray should be incident on one surface so that after reflection from the silvered surface, it retraces its path
(a) 30° (b) 60° (c) 45° (d) $\sin^{-1}\sqrt{1.5}$
26. Shown in the figure below is a meter-bridge set up with null deflection in the galvanometer
- 
- The value of the unknown resistor R is
(a) $220\ \Omega$ (b) $110\ \Omega$ (c) $55\ \Omega$ (d) $13.75\ \Omega$
27. The voltmeter reads 40 V across $60\ \Omega$ resistance. The resistance of voltmeter is
- 
- (a) $10\ \Omega$ (b) $20\ \Omega$ (c) $30\ \Omega$ (d) $40\ \Omega$
28. Figure show a network of three resistances. When some potential difference is applied across the network, thermal powers dissipated by A, B and C are in the ratio.
- 
- (a) $2 : 3 : 4$ (b) $2 : 4 : 3$
(c) $4 : 2 : 3$ (d) $3 : 2 : 4$
29. When the length and area of cross-section both are doubled, then its resistance
(a) Will become half
(b) Will be doubled
(c) Will remain the same
(d) Will become four times
30. The resistance of a wire is 20 ohms . It is so stretched that the length becomes three times, then the new resistance of the wire will be :
(a) 6.67 ohms (b) 60.0 ohms
(c) 120 ohms (d) 180.0 ohms

31. The resistivity of a wire depends on its
 (a) Length (b) Area of cross-section
 (c) Shape (d) Material
32. The electric field intensity E , current density j and specific resistance ρ are related to each other by the relation :
 (a) $E = j/\rho$ (b) $E = j\rho$
 (c) $E = \rho/j$ (d) $\rho = jE$
33. 5 amperes of current is passed through a metallic conductor. The charge flowing in one minute in coulombs will be :
 (a) 5 (b) 12
 (c) 1 / 12 (d) 300

34. In the figure a carbon resistor has bands of different colours on its body as mentioned in the figure. The value of the resistance is :



- (a) 2.2 k Ω (b) 3.3 k Ω
 (c) 5.6 k Ω (d) 9.1 k Ω
35. The n rows each containing m cells in series are joined in parallel. Maximum current is taken from this combination across an external resistance of 3 Ω resistance. If the total number of cells used are 24 and internal resistance of each cell is 0.5 Ω then
 (a) $m = 8, n = 3$ (b) $m = 6, n = 4$
 (c) $m = 12, n = 2$ (d) $m = 2, n = 12$

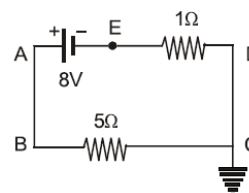
SECTION - B

36. A wire of resistance R is divided in 10 equal parts. These parts are connected in parallel, the equivalent resistance of such connection will be :
 (a) 0.01 R (b) 0.1 R (c) 10 R (d) 100 R
37. There are 8 equal resistances R . Two are connected in parallel, such four groups are connected in series, the total resistance of the system will be :
 (a) $R/2$ (b) 2 R (c) 4 R (d) 8 R
38. Three resistance of one ohm each are connected in parallel. Such connection is again connected with $2/3 \Omega$ resistor in series. The resultant resistance will be :
 (a) $\frac{5}{3} \Omega$ (b) $\frac{3}{2} \Omega$ (c) 1 Ω (d) $\frac{2}{3} \Omega$

39. Four wires of equal length and of resistances 10 ohms each are connected in the form of a square. The equivalent resistance between two opposite corners of the square is :
 (a) 10 ohm (b) 40 ohm
 (c) 20 ohm (d) 10/4 ohm
40. Three resistors each of 2 ohm are connected together in a triangular shape. The resistance between any two vertices will be :
 (a) 4/3 ohm (b) 3/4 ohm
 (c) 3 ohm (d) 6 ohm
41. A copper wire of resistance R is cut into ten parts of equal length. Two pieces each are joined in series and then five such combination are joined in parallel. The new combination will have a resistance
 (a) R (b) $\frac{R}{4}$ (c) $\frac{R}{5}$ (d) $\frac{R}{25}$

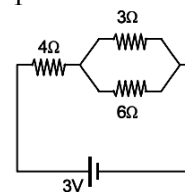
42. n equal resistors are first connected in series and then connected in parallel. What is the ratio of the maximum to the minimum resistance
 (a) n (b) $\frac{1}{n^2}$ (c) n^2 (d) $\frac{1}{n}$

43. In the given circuit, the potential of the point E is:



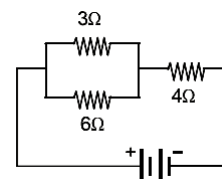
- (a) Zero (b) - 8 V (c) - 4/3 V (d) 4/3 V

44. The potential drop across the 3 Ω resistor is:



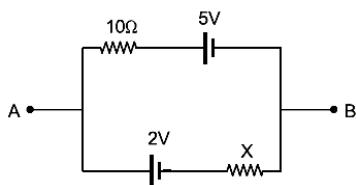
- (a) 1 V (b) 1.5 V (c) 2 V (d) 3 V

45. In the figure, current through the 3 Ω resistor is 0.8 ampere, then potential drop through 4 Ω resistor is :

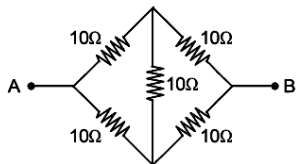


- (a) 9.6 V (b) 2.6 V (c) 4.8 V (d) 1.2 V

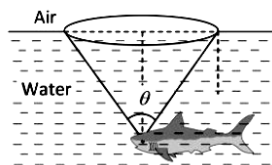
46. If $V_{AB} = 4V$ in the given figure, then resistance X will be.



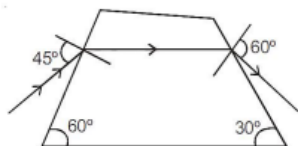
- (a) 5 Ω (b) 10 Ω (c) 15 Ω (d) 20 Ω
47. The effective resistance between points A and B is :



- (a) 10 Ω (b) 20 Ω
(c) 40 Ω (d) None of the above three values
48. Kirchhoff's second law is based on the law of conservation of :
- (a) Charge (b) Energy
(c) Momentum (d) Sum of mass and energy
49. A fish is a little away below the surface of a lake. If the critical angle is 49° , then the fish could see thing above the water surface within an angular range of θ° where.



- (a) $\theta = 49^\circ$ (b) $\theta = 90^\circ$
(c) $\theta = 98^\circ$ (d) $\theta = 24 \frac{1}{2}^\circ$
50. In the diagram, a ray is passing through a broken prism, find angular deviation for the ray



- (a) 105° (b) 30° (c) 60° (d) 15°

CHEMISTRY

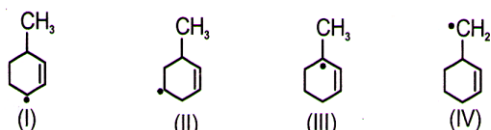
SECTION - A

51. When Zn reacts with conc. HNO_3 , it gives
(a) NO_2 (b) NO (c) N_2O_3 (d) N_2O_5
52. Select the incorrect statement about PH_3
(a) It is produced by hydrolysis of Ca_3P_2
(b) It gives black ppt. with $CuSO_4$ solution
(c) Highly inflammable in nature
(d) It is used in smoke screens
53. Phosphorus on reaction with NaOH produces a colourless gas with rotten fish smell. The gas gives a vortex ring. The colourless gas is
(a) PH_3 (b) P_2O_3
(c) P_2O_5 (d) P_2S_5
54. Total number of lone pair present in P_4O_6 and P_4O_{10} respectively are
(a) 20, 20 (b) 16, 20
(c) 4, 0 (d) 20, 16
55. Select the correct statement options against the indicated property
I. $H_3PO_4 > H_3PO_3 > H_3PO_2$: Acidic strength
II. $NCl_3 > PCl_3 > AsCl_3 > SbCl_3$: Bond angle
III. $PF_5 > AsF_5 > SbF_5$: Lewis acidic strength
IV. $Bi > Sb > As > P > N$: Melting point
(a) I, II (b) II, III
(c) III, IV (d) II, IV
56. $Pb(NO_3)_2 \xrightarrow{673K} PbO + O_2 + \text{(A)}$
 $NH_4NO_3 \xrightarrow{\Delta} \text{(B)} + H_2O$
 (B) and (A) respectively are
(a) NO_2 and N_2O (b) NO and NO_2
(c) N_2O and NO_2 (d) NO_2 and NO
57. Nitrogen (I) oxide is prepared by
(a) Thermal decomposition of sodium nitrite at low temperature
(b) Thermal decomposition of ammonium nitrate
(c) Reaction of NO with N_2O_4 at 250K
(d) HNO_3 with P_4O_{10}

58. The incorrect order against the indicated property is
- (a) $N > P > As$ (strength of π -bond with oxygen atom)
- (b) $NH_3 > PH_3 > AsH_3 > SbH_3$ (Lewis basic character)
- (c) $NH_3 > BiH_3 > SbH_3 > AsH_3 > PH_3$ (Boiling point)
- (d) $NH_3 > SbH_3 > AsH_3 > PH_3$ (Melting point)

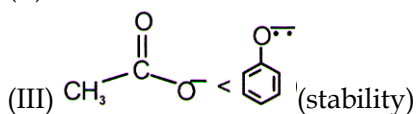
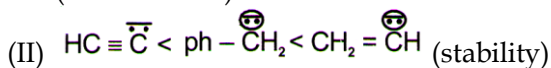
59. Phosphine is produced by adding H_2O to
(a) $CaCl_2$ (b) HPO_3 (c) Ca_3P_2 (d) P_4O_{10}

60. Decreasing order of stability for the following radical is



- (a) $III > I > II > IV$ (b) $III > II > I > IV$
(c) $III < II < I < IV$ (d) $I < IV < II < III$

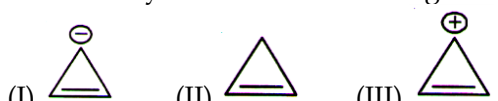
61. Which of the following is/are correct order ?
(I) $HCOOH > PhCOOH > CH_3COOH$ (acidic nature)



- (IV) $CHF_3 > CHCl_3$ (acidic strength)

- (a) I only (b) I, III, IV
(c) II, III (d) III, IV

62. The stability order of the following compounds



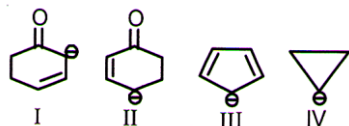
- (a) (i) > (ii) > (iii) (b) (iii) > (i) > (ii)
(c) (iii) > (ii) > (i) (d) (ii) > (i) > (iii)

63. How many resonance structure are possible for



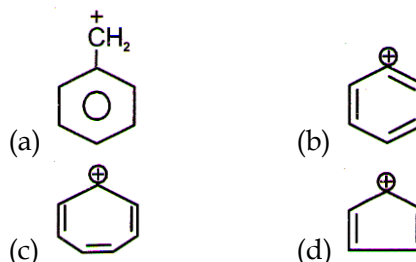
- (a) 4 (b) 5 (c) 1 (d) 3

64. Arrange the following carbanions in decreasing order of their stability

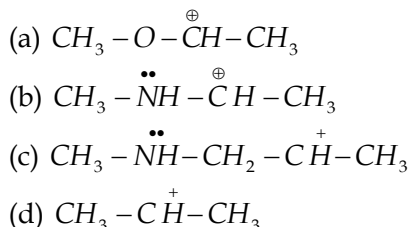


- (a) $IV > III > II > I$ (b) $III > IV > II > I$
(c) $IV > II > I > III$ (d) $III > II > I > IV$

65. Which of the following is most stable carbocation ?



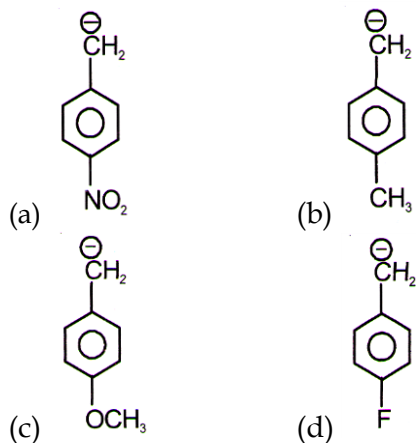
66. Which one is most stable carbocation ?



67. Identify the wrong match ?

	I		II
(a)		-	Aromatic
(b)		-	Antiaromatic
(c)		-	Antiaromatic
(d)		-	Aromatic

68. Which one is most stable carbanion ?

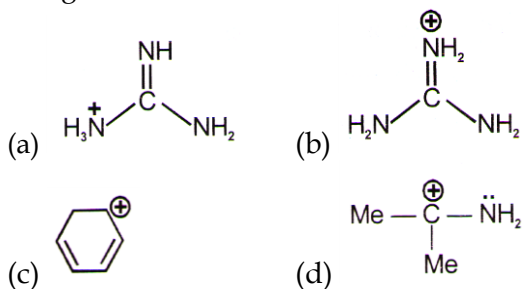


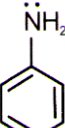
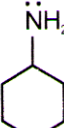
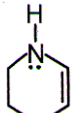
69. Decreasing order of acidic strengths of following compound is



- (a) $x > y > z$ (b) $y > x > z$
(c) $z > y > x$ (d) $z > x > y$

70. In which of the following molecule positive charge is not delocalized because of resonance ?



71. Correct order of basic strength in above molecule.
- (i)  (ii)  (iii) 

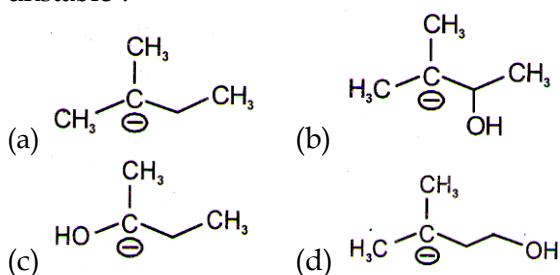
- (a) (iii) > (ii) > (i) (b) (i) > (ii) > (iii)
(c) (ii) > (iii) > (i) (d) (iii) > (i) > (ii)

72. The decreasing order of acidic character of the compounds

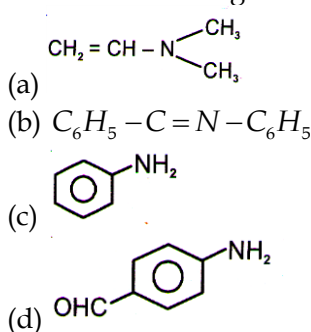


- (a) $MeOH > CH_3C \equiv CH > Me_2CHOH > Me_3COH$
(b) $CH_3C \equiv CH > Me_3COH > Me_2CHOH > MeOH$
(c) $MeOH > Me_2CHOH > Me_3COH > CH_3C \equiv CH$
(d) $Me_3COH > Me_2CHOH > MeOH > CH_3C \equiv CH$

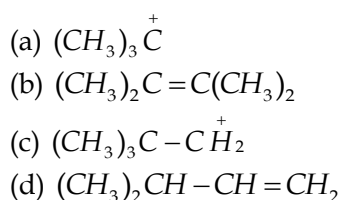
73. Which of the following carbanion is most unstable ?



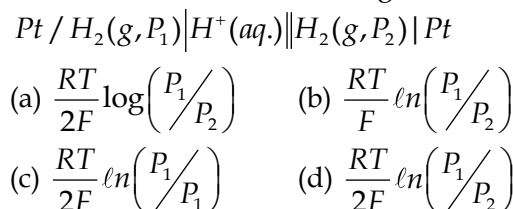
74. The C-N bond length will be shortest in



75. Maximum number of hyperconjugation structure is found in



76. Which will be the emf for the given cell ?



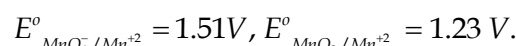
77. $Ni | Ni^{2+}(1M) || Au^{3+}(1M) | Au$. if $E^\circ_{Ni^{2+}/Ni}$ and $E^\circ_{Au^{3+}/Au}$ respectively are -0.25V and 1.5V, EMF of the cell is



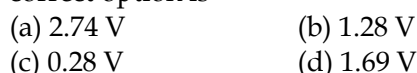
78. The standard reduction potentials of three metals A, B and C are 0.5 V, -3.0 V and -1.2 V respectively. The reducing power of these metals are



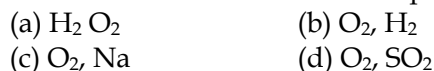
79. Calculate $E^\circ_{MnO_4^-/MnO_2}$ given that



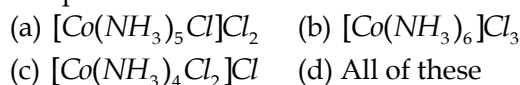
correct option is



80. A solution of sodium sulphate in water is electrolysed using inert electrodes. The products at the cathode and anode are respectively.



81. A complex is represented as $CoCl_3 \cdot xNH_3$. Its 0.1 molar solution in water shows melting point -0.558K. (K_f of $H_2O = 1.86 K \text{ molality}^{-1}$). Assuming 100% ionization of complex and coordination number of Co is 6, formula of complex is



82. The temperature at which 10% aqueous solution (W/V) of glucose will exhibit the osmotic pressure of 16.4 atm is [$R=0.082 \text{ dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$]

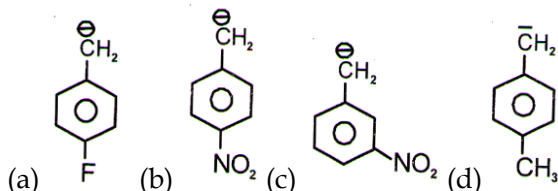


83. Calculate the Van't Hoff factor (i) of $K_4[Fe(CN)_6]$ which is 80% ionized
 (a) 1.4 (b) 2.8 (c) 3.2 (d) 4.2
84. 0.1 Molal aqueous solution of an electrolyte AB_3 is 90% ionized. The boiling point of solution at 1 atm is [$K_b(H_2O) = 0.52K.kg.mol^{-1}$]
 (a) 273.19K (b) 274.92 K
 (c) 374.92 K (d) 373.19 K
85. Which one pair of compounds will exhibit +ve deviation from Raoult's law ?
 (a) $H_2O + HNO_3$
 (b) $(CH_3)_2CO + CHCl_3$
 (c) $C_2H_5OH + H_2O$
 (d) $CH_3COOH + C_5H_5N$ (Pyridine)

SECTION - B

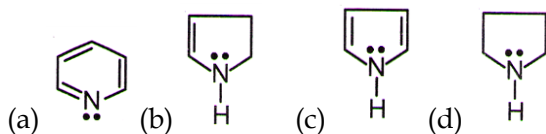
86. Arrange the following compound in decreasing order of stability
 (1) $CH_3\dot{C}H_2$ (2) $(CH_3)_2\dot{C}H$
 (3) $(CH_3)_3\dot{C}$
 (a) $3 > 1 > 2$ (b) $3 > 2 > 1$
 (c) $1 > 2 > 3$ (d) $2 > 3 > 1$

87. Which of the following carbanion is most stable ?

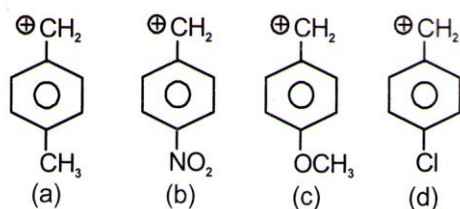


88. Which of the following is the most stable ?
 (a) $Me_3\bar{C}:$ (b) $H-C\equiv\bar{C}:$
 (c) $Ph-\bar{C}H_2$ (d)

89. Weakest base among the following is

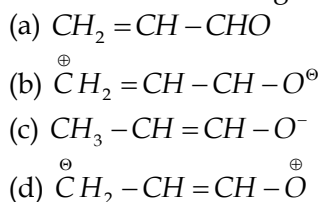


90. Which of the following is the correct order of stability among the given carbocation's ?

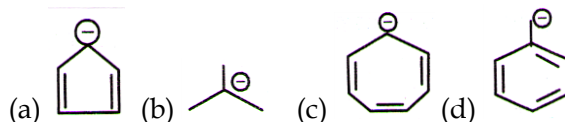


- (a) $b < d < a < c$ (b) $c < a < d < b$
 (c) $b < a < d < c$ (d) $a < b < d < c$

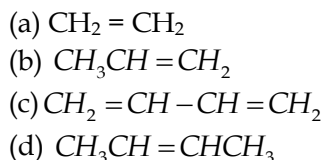
91. Most stable resonating structure is



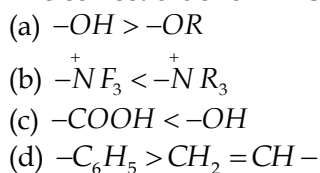
92. The most stable carbanion among the following is



93. The most stable alkene among the following is



94. The correct order of $-I$ is



95. Which of the following is not true for Frenkel defects ?

- (a) Large difference between cationic and anionic sizes exists
 (b) Usually halides of alkali metals do not possess Frenkel defect
 (c) Coordination number is high for such lattices
 (d) An ionic crystal with Schottky defect, may also have Frenkel defect

96. In an ionic crystal the radius of A^+ and B^- ions are respectively 150 pm and 200 pm. The coordination number and the type of lattice will be respectively

- (a) (8,8) and bcc
 (b) (8,4) and fcc
 (c) (6,6) and ccp
 (d) (4,8) and tetrahedral

97. Henry law constant of N_2 in water is 10^4 atm. Find the molality (Approx) of N_2 in water when pressure of N_2 over water surface is 5 atm (consider temperature remains constant)

- (a) 0.10 (b) 0.028 (c) 0.05 (d) 0.12

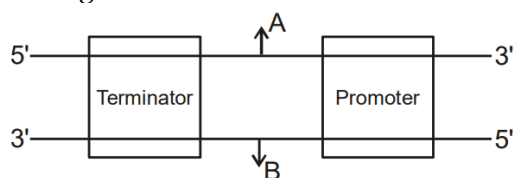
98. Which one of the following solution has highest boiling point ? (considering Molality = Molarity)
 (a) 0.2 M Aqueous NaCl solution
 (b) 0.5 M Aqueous Glucose solution
 (c) 0.3 M Aqueous CaCl₂ Solution
 (d) 0.2 M Aqueous urea solution
99. At 40°C, the vapour pressure of pure liquids, benzene and toluene are 160 mm Hg and 60 mm Hg respectively. At the same temperature, the vapour pressure of an equimolar solution of two liquids, assuming the ideal solution should be
 (a) 140 mm Hg (b) 110 mm Hg
 (c) 220 mm Hg (d) 100 mm Hg
100. The molar conductance at infinite dilution of AgNO₃, NaCl and NaNO₃ are 116.5, 110.3 and 105.2 mho cm² mol⁻¹ respectively. The molar conductance of AgCl at infinite dilution will be
 (a) 121.6 S cm² mol⁻¹ (b) 111.4 S cm² mol⁻¹
 (c) 130.6 S cm² mol⁻¹ (d) 150.2 S cm² mol⁻¹
105. Methylated form of uracil
 (a) Is a purine base
 (b) Is present in DNA
 (c) Is present in mRNA
 (d) Has four N-atoms
106. The unequivocal proof that DNA is the genetic material came from the experiment
 (a) Performed by Avery, MacLeod and McCarty
 (b) Performed by Alfred Hershey and Martha Chase
 (c) That used heavy isotope of nitrogen
 (d) In which radioactive thymidine was used
107. If the proportion of thymine in dsDNA of all the bases is 43%, then what will be the proportion of bicyclic nitrogenous-bases in this DNA?
 (a) 43% (b) 7% (c) 14% (d) 50%
108. All of the given are pyrimidines, except
 (a) Guanine (b) Cytosine
 (c) Uracil (d) Thymine
109. In Griffith's experiments, mice died when injected with
 (a) Heat killed R-strain bacteria
 (b) Live R-strain bacteria
 (c) Heat killed S-strain combined with live R strain bacteria
 (d) Only heat killed S-strain bacteria
110. DNA is preferred over RNA as genetic material due to many reason. One of them is
 (a) It can directly code for protein synthesis
 (b) Thymine in DNA confers additional stability
 (c) DNA is able to mutate at faster rate
 (d) It has reactive 2'-OH group in nucleotide
111. According to reverse central dogma
 (a) DNA is synthesized from RNA
 (b) RNA is synthesized from proteins
 (c) DNA is directly translated into proteins
 (d) Different types of RNA are formed from hnRNA
112. By performing a series of experiments that showed the effect of R and S strains of *Streptococcus pneumoniae* on mice, Griffith concluded that
 (a) Protein digesting enzyme does not affect transformation
 (b) DNA is more stable genetic material than RNA
 (c) DNA can be synthesised from RNA
 (d) Non-virulent bacteria were transformed by heat killed virulent bacteria

BOTANY

SECTION - A

101. Nucleoside in DNA can be represented as
 (a) Adenine + ribose sugar
 (b) Thymine + pentose sugar
 (c) Uracil + pentose sugar
 (d) Guanine + ribose sugar
102. N-glycosidic linkages in a polynucleotide chain join
 (a) A nitrogenous base to a pentose sugar
 (b) A nucleotide to a ribose sugar
 (c) A nucleoside to a pentose sugar
 (d) A phosphate group to a nucleoside
103. Read the following statements and choose the correct one(s).
 A. In a DNA molecule, base ratio (A + T)/(C + G) for all the species is always 1.
 B. Chargaff's rule is applicable only for double stranded DNA.
 C. A purine is heterocyclic, 9-membered double-ring structure.
 (a) A and B (b) B and C
 (c) Only B (d) Only C
104. The structures which appear as "beads on string" in chromatin under electron microscope do not have
 (a) H2A histone proteins
 (b) H3 histone proteins
 (c) H2B histone proteins
 (d) Ribosomes

113. Which of the following features is/are associated with heterochromatin?
 (i) Light stained region
 (ii) Densely packed
 (iii) Transcriptionally inactive
 (a) (i) and (ii) (b) (ii) and (iii)
 (c) Only (ii) (d) (i) and (iii)
114. Select incorrect statement w.r.t. human genome.
 (a) Smallest known human gene is dystrophin with only 2400 bases
 (b) Human genome contains 3164.7 million nucleotide bases
 (c) Less than 2 percent of genome codes for proteins
 (d) The sequence of chromosome 1 was completed in May 2006
115. Number of genes associated with chromosome 1 in human beings is
 (a) 14 (b) 2968 (c) 3000 (d) 231
116. The formation of peptide bond between two amino acids during translation in *E. coli* bacterium is catalysed by
 (a) 18S rRNA (b) 23S rRNA
 (c) 16S rRNA (d) 28S rRNA
117. Tailing of hnRNA is the addition of _ (A)_ residues with the help of _ (B)_. Select the correct option for A and B.
 (a) (A) 200–300 adenylate, (B) Poly A polymerase
 (b) (A) 100–200 adenylate, (B) Guanyl transferase
 (c) (A) 200–300 adenylate, (B) Guanyl transferase
 (d) (A) 100–200 adenylate, (B) Poly T polymerase
118. Choose correct option for A and B w.r.t. schematic representation of a transcription unit given in figure.



- (a) A–Non-template strand B–Coding strand (b) A–Coding strand B–Non-template strand
 (c) A–Template strand B–Coding strand
 (d) A–Sense strand B–Antisense strand

119. In prokaryotic DNA replication
 (a) DNA polymerase II is the main polymerising enzyme
 (b) Deoxyribonucleoside triphosphates provide energy for polymerisation
 (c) Only DNA polymerases are required
 (d) Five types of RNA polymerases are used
120. In prokaryotes, RNA polymerase binds to a region of DNA which is recognised by
 (a) ρ factor (b) tRNA
 (c) σ factor (d) Core enzyme
121. Which of the following is wrong w.r.t. RNA polymerase enzyme in bacteria?
 (a) It facilitates opening of the DNA helix
 (b) Needs RNA primer to initiate transcription
 (c) It is a holoenzyme
 (d) Catalyses polymerisation in 5' \rightarrow 3' direction
122. What would be the number of amino acids in the polypeptide coded by mRNA with given nucleotide sequence if the 15th nucleotide from 5' end is deleted?
 5'-AUGGUGUUUUGUUGGACC UAA-3'
 (a) 4 (b) 5 (c) 6 (d) 3
123. In the synthesis of which of the following, DNA is not directly involved?
 (a) mRNA (b) rRNA
 (c) Polypeptide chain (d) tRNA
124. All the termination codons of universal genetic codes begin with a particular nitrogenous base, that is
 (a) Adenine (b) Cytosine
 (c) Uracil (d) Thymine
125. Identify the option in which difference between prokaryotic and eukaryotic transcription is not mentioned correctly.

	Prokaryotic Transcription		Eukaryotic Transcription
(a)	Splicing is generally not required	-	Splicing is required
(b)	There is only one type of RNA polymerase	-	There are three types of RNA polymerase
(c)	Structural gene is polycistronic	-	Structural gene is monocistronic
(d)	Post transcription modification takes place only in the cytoplasm	-	Post transcriptional modification takes place in nucleolus as well as in cytoplasm

126. Peptidyl transferase plays an important role during protein synthesis. What is true about this enzyme?
 (a) It is proteinaceous
 (b) It is ribozyme
 (c) It enhance the rate of peptide bond formation
 (d) Both (b) and (c)
127. Smallest RNA is
 (a) rRNA (b) mRNA (c) hnRNA (d) tRNA
128. Select an option that shows the correct sequence of the events involved in the translation mechanism.
 A. Binding of mRNA to smaller subunit of ribosome
 B. Aminoacylation of tRNA
 C. Binding of initiator tRNA to the P-site of the ribosome
 D. Formation of polypeptide
 E. Formation of peptide bond between first and second amino acids at the A site
 (1) A → B → C → D → E
 (b) B → A → E → C → D
 (c) B → D → A → C → E
 (d) B → A → C → E → D
129. Select the correct statement(s) about lac operon.
 A. Glucose or galactose acts as inducer for the expression of lac operon
 B. In the presence of lactose/allolactose the repressor protein binds with the lactose/allolactose molecules
 C. It has four structural genes and two regulator genes
 D. Its regulation by repressor protein is called positive regulation
 (a) A and B (b) B and C (c) Only B (d) Only D
130. If a eukaryotic cell lacks RNA polymerase III, then it cannot synthesize
 (a) tRNA (b) 28S rRNA
 (c) 5.8S rRNA (d) mRNA
131. Minisatellites
 (a) Are not surrounded by conserved restriction sites
 (b) Are also known as variable number of tandem repeats (VNTR)
 (c) Code for structural proteins only
 (d) Form a very small portion of human genome

132. Match the columns w.r.t. the process of translation and choose the correct option

	Column - I		Column - II
A.	UTRs	(i)	Catalyst
B.	rRNA	(ii)	Template RNA
C.	mRNA	(iii)	Adapter RNA
D.	tRNA	(iv)	Are not translated

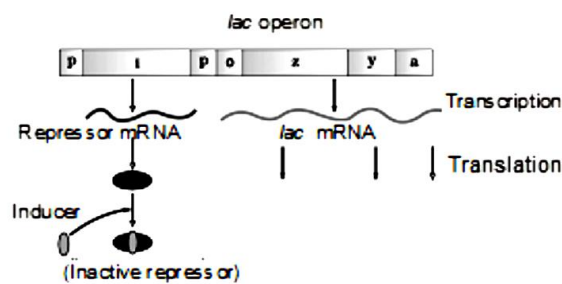
- (a) A(i), B(ii), C(iii), D(iv)
 (b) A(iv), B(i), C(ii), D(iii)
 (c) A(iv), B(iii), C(ii), D(i)
 (d) A(ii), B(iii), C(iv), D(i)
133. Science of collecting and analyzing complex biological data such as genetic codes is called (a) Bioenergetics (b) Biomathematics
 (c) Biostatistics (d) Bioinformatics
134. Some amino acids are coded by more than one codon. It reflects which of the given features of genetic code?
 (a) Universality (b) Degeneracy
 (c) Commaless nature (d) Non-overlapping
135. Which of the given is required for termination of transcription in prokaryotes?
 (a) Sigma factor (b) Rho factor
 (c) DNA helicase (d) Topoisomerase

SECTION - B

136. The technique of DNA fingerprinting was developed by
 (a) Sutton and Boveri
 (b) Alec Jeffreys
 (c) Sanger
 (d) Hershey and Chase
137. A are locations where single base DNA differences occur in human genome. Here 'A' is
 (a) SNP (b) NHC proteins
 (c) mRNA (d) UTRs
138. Select the mis-match.
 (a) Exons : Present in processed RNA
 (b) Cistron : Segment of DNA coding for a polypeptide
 (c) Split genes : Common in prokaryotes
 (d) Introns : Intervening sequences
139. In universal genetic codes, the initiator codon codes for
 (a) Valine (b) Methionine
 (c) Alanine (d) Phenylalanine
140. How many of the following can be true for structural RNA in eubacteria?
 Catalyst, Genetic material, Ribozyme, Peptidyl transferase
 (a) Two (b) Four (c) Three (d) One

141. DNA dependent DNA polymerases
 (a) Initiate the process of replication
 (b) Initiate replication randomly at any place
 (c) Catalyse polymerisation only in one direction 5' → 3'
 (d) Use ribonucleotide triphosphates as substrate
142. The length of DNA in a typical mammalian cell having 6.6×10^9 bp is about
 (a) 2.2 Å (b) 2.2 nm (c) 2.2 cm (d) 2.2 m
143. Hershey and Chase worked with
 (a) Baculovirus
 (b) Tobacco mosaic virus
 (c) Bacteriophage
 (d) Agrobacterium
144. How many of base pairs of DNA are present in a typical nucleosome?
 (a) 150 (b) 200 (c) 250 (d) 300
145. Histone proteins are basic due to excess of amino acids
 (a) Arginines only
 (b) Lysines only
 (c) Aspartic acid only
 (d) Both arginines and lysines
146. Which of the following is not true for DNA?
 (a) Polymer of deoxyribonucleotides
 (b) Are always in double stranded form in bacteriophages
 (c) Adenine and thymine are present
 (d) Sugar and nitrogenous base is linked through N-glycosidic linkage
147. Consider the following statements
 A. Purines and pyrimidines are in equal amounts
 B. Functions as genetic material
 C. Can be adaptor or structural molecule
 D. A long polymer of deoxyribonucleotides
 Which of these are correct for DNA found in eukaryotes?
 (a) A, B and D only (b) A, C and D only
 (c) B, C and D only (d) All A, B, C and D
148. State **true (T)** or **false (F)** regarding transcription and select the correct option
 A. There is single DNA dependent RNA polymerase that catalyses transcription of all types of RNA in *E. coli* and yeast.
 B. The RNA polymerase II transcribes precursor of mRNA.
 C. Transcription and translation can be coupled in *E. coli*.
- | | A | B | C |
|-----|----------|----------|----------|
| (a) | F | F | F |
| (b) | F | T | T |
| (c) | T | F | T |
| (d) | F | F | T |

149. Examine the figure given below and select the correct match



- (a) 'i' - Constitutive expression
 (b) 'z' - Produce transacetylase
 (c) 'a' - Codes for permease
 (d) 'o' - Binding site for RNA polymerase
150. A genetic material contains guanine (G) = 14%. Which of the following base proportion confirms that it is double stranded DNA?
 (a) T = 36%, C = 14%, A = 36%
 (b) C = 36%, T = 14%, A = 14%
 (c) A = 14%, T = 36%, C = 36%
 (d) U = 36%, C = 14%, A = 36%

ZOOLOGY

SECTION - A

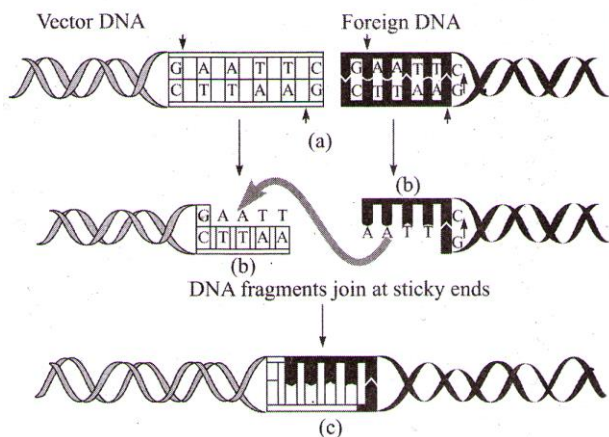
151. The EFB stands for
 (a) European Forum of biotechnology
 (b) Engineering Federation of biotechnology
 (c) European Function on biotechnology
 (d) European Federation of biotechnology
152. If an alien DNA is linked with the origin of replication, this alien piece of DNA can replicate and multiply itself in the host organism. This can be called as
 (a) Cloning
 (b) Making multiple identical copies of any template DNA
 (c) Splicing
 (d) Both a and b
153. Among the following, select the tools of recombinant DNA technology.
 a. Restriction enzymes
 b. Polymerase enzymes
 c. Ligases
 d. Vectors
 e. Host organisms
 (a) a, b, c, d and e (b) a, c, d and e
 (c) a, b, c and d (d) a, b, c and e

154. Which of the following features are required to facilitate cloning into a vector?
- Origin of replication (ori)
 - Selectable marker
 - Cloning site
- (a) a and b (b) b and c
(c) a and c (d) a, b and c

155. Read the following statements and find out the incorrect statements with reference to agarose gel electrophoresis.
- Now a days the most commonly used matrix is agarose which is a synthetic polymer extracted from sea woods.
 - Larger the fragment size, the farther it moves.
 - We can not see pure DNA in UV light without staining.
 - DNA fragments separate (resolve) according to their size through sieving effect provided by the agarose gel.
- (a) i, ii and iii (b) ii, iii and iv
(c) iii and iv (d) i and ii

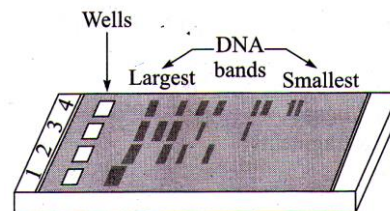
156. BamH I site is present at
- amp^R gene
 - tet^R gene
 - Ori
 - rop

157. Recognize the figure and find out the correct matching

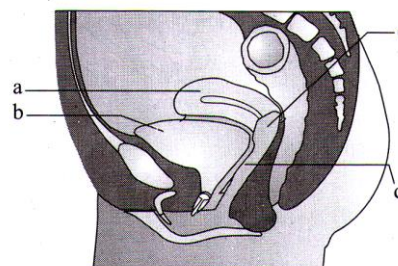


- a - Hind II, b - blunt end, c - non recombinant DNA
- a - BamH I, b - sticky end, c - recombinant DNA
- a - EcoR I, b - sticky end, c - DNA Non recombinant DNA
- a - EcoR I, b - sticky end, c - recombinant DNA

158. The following figure shows



- Polymerase chain reaction
 - Agarose gel electrophoresis
 - Downstream processing
 - Biolistics or gene gun
159. Find the correct match for the breaking of the cell wall during isolation of genetic material in rDNA procedure
- Cellulase - Plant cell
 - Lysozyme - Fungus
 - Chitinase - Bacteria
 - All of the above
160. PCR proceeds in three distinct steps governed by temperature. They are in order of
- Denaturation, synthesis, annealing
 - Annealing, synthesis, denaturation
 - Synthesis, annealing, denaturation
 - Denaturation, annealing, synthesis
161. Which is the correct match?
- Cry I Ab - Cotton bollworms
 - Cry I Ac - Cotton bollworms
 - Cry I Ac - Corn borer
 - Cry II Ab - Corn borer
162. Recognize the figure and find out the correct matching.



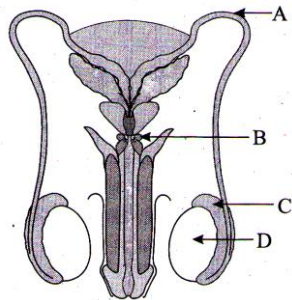
- d - vagina, c - cervix, b - urinary bladder, a - uterus, e - urethra
- c - vagina, d - cervix, a - urinary bladder, b - uterus, e - urethra
- e - vagina, b - cervix, c - urinary bladder, d - uterus, a - urethra
- d - vagina, c - cervix, a - urinary bladder, b - uterus, e - urethra

163. Match the column:

Column I	Column II
A. FSH	1. Prepare endometrium for implantation
B. LH	2. Develops female secondary sexual characters
C. Progesterone	3. Contraction of uterine wall
D. Estrogen	4. Development of corpus luteum
	5. Maturation of Graafian follicle

	A	B	C	D
(a)	5	4	1	2
(b)	4	5	2	1
(c)	4	3	2	5
(d)	5	1	2	4

164. Observe the given diagram and read the statements carefully. Identify the correct ones.



- (i) A carries urine and sperms
 - (ii) B secretes a fluid that helps in the lubrication of penis.
 - (iii) D produces testosterone but not sperms
 - (iv) C stores sperms.
- (a) (i) and (ii) (b) (ii) and (iii)
 (c) (ii) and (iv) (d) (i) and (iv)

165. Match the columns w.r.t. chromosomal aberration and disorders:

	Column - I		Column - II
A.	Inversion	(i)	Cri - du - chat syndrome
B.	Duplication	(ii)	Bar - eye trait in Drosophila
C.	Deletion	(iii)	Sterility in humans
D.	Translocation	(iv)	Chronic myelogenous leukaemia

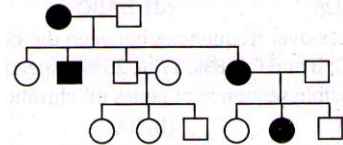
- (a) A = (iii), B = (ii), C = (iv), D = (i)
- (b) A = (iii), B = (ii), C = (i), D = (iv)
- (c) A = (i), B = (ii), C = (iv), D = (iii)
- (d) A = (ii), B = (iii), C = (i), D = (iv)

166. Match the column w.r.t. pedigree symbols.

	Column - I		Column - II
A.	Consanguineous mating	(i)	
B.	Mating	(ii)	
C.	Sex - unspecified	(iii)	
D.	Affected male	(iv)	

- (a) A = (i), B = (ii), C = (iv), D = (iii)
- (b) A = (iii), B = (ii), C = (i), D = (iv)
- (c) A = (i), B = (iv), C = (ii), D = (iii)
- (d) A = (iv), B = (ii), C = (iii), D = (i)

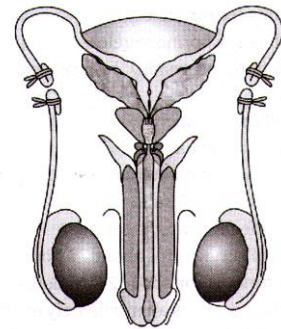
167. Study the pedigree chart given below.



The trait under study is:

- (a) Autosomal dominant trait
- (b) recessive X - linked trait
- (c) Dominant X - linked trait
- (d) Either (a) or (c)

168. What does the given diagram depicts?



- (a) Vasectomy
- (b) Tubectomy
- (c) Chemical sterilization
- (d) All of the above

169. Match the columns:

	Column - I		Column - II
A.	HPV	(i)	AIDS
B.	Treponema	(ii)	Hepatitis - B
C.	HBV	(iii)	Syphilis
D.	HIV	(iv)	Genital warts

- (a) A = (iv), B = (iii), C = (i), D = (ii)
- (b) A = (iii), B = (iv), C = (ii), D = (i)
- (c) A = (iii), B = (i), C = (iv), D = (ii)
- (d) A = (iv), B = (iii), C = (ii), D = (i)

170. Correct sequence of spermatogenesis is
- (a) Spermatogonia → secondary spermatocyte → spermatid → Primary spermatocyte → spermatozoa
 - (b) Spermatogonia → primary spermatocyte → Secondary spermatocyte → Spermatid → spermatozoa
 - (c) Spermatid → spermatozoa → Spermatogonia → Secondary spermatocyte → Primary Spermatocyte
 - (d) Spermatozoa → Primary spermatocyte → Secondary spermatocyte → Spermatogonia → Spermatid

171. Select the correct sequence for transport of sperm cells in male reproductive system.
- (a) Testis → Epididymis → Vasa efferentia → Vas deferens → Ejaculatory duct → Inguinal canal → Urethra → Urethral meatus
 - (b) Testis → Epididymis → Vasa efferentia → Rete testis → Inguinal canal → Urethra
 - (c) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus
 - (d) Seminiferous tubules → Vasa efferentia → Epididymis → Inguinal canal → Urethra

172. MTP is essential and helpful for
- (a) getting rid of unwanted pregnancies due to unprotected sex
 - (b) getting rid of unwanted pregnancies due to failure of contraceptive used
 - (c) Medically when continuation of pregnancy is harmful for mother or foetus or both
 - (d) All of these

173. Artificial insemination means
- (a) Transfer of sperms of husband to a test tube containing ova
 - (b) Artificial introduction of sperms of a healthy donor into the vagina
 - (c) Introduction of sperms of a healthy donor directly into the ovary
 - (d) Transfer of ovum of a healthy donor into the fallopian tube of another female who can not produce one

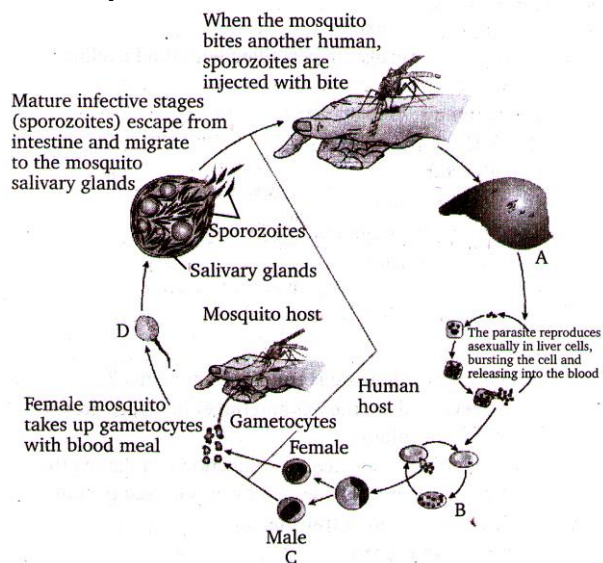
174. Which of the following statement are correct with reference to given diagram :



- (a) It is a kind of natural method for contraception
- (b) It is a kind of hormone releasing IUDs
- (c) Estrogen - Oxytocin combination used
- (d) None of these

175. Which one of the following is the correct match
- | | |
|-----------------------|-------------------------------|
| A. Tubectomy | i. Chlamydiais |
| B. RTI | ii. Sterilisation |
| C. Vulnerable to STIs | iii. Emergency contraceptives |
| D. IUDs | iv. 15-24 years human |
- (a) A-i, B-ii, C-iii, D-iv (b) A-ii, B-i, C-iv, D-iii
 (c) A-iv, B-ii, C-iii, D-I (d) A-i, B-iii, C-ii, D-iv

176. Identify the stages marked as A, B, C and D in the life cycle of *Plasmodium*.



	A	B	C	D
(a)	Sporozoites in spleen	Sexual reproduction of Plasmodium in RBC	Gametocytes in RBC	Fertilization of gametocytes in mosquito's intestine
(b)	Sporozoites in liver	Asexual reproduction of Plasmodium in RBC	Gametocytes in RBC	Fertilization of gametocytes in mosquito's intestine
(c)	Sporozoites in liver	Asexual of Plasmodium in RBC	Gametocytes in RBC	Fertilization of gametocytes in mosquito's glands
(d)	Sporozoites in kidney	Sexual reproduction of Plasmodium in RBC	Gametocytes in RBC	Fertilization of gametocytes in mosquito's intestine

177. Find out the true (T)/False (F) statements and choose the correct option

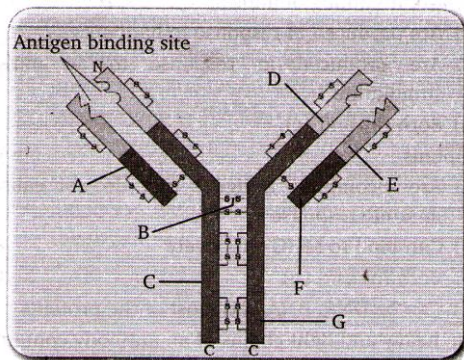
- I. Infectious diseases like polio, diphtheria, pneumonia and tetanus have been controlled to a large extent by the use of vaccines
- II. Chikungunya is a bacterial infection disease
- III. Mycobacterium causes leprosy and tuberculosis
- IV. Small pox has been eradicated from the world by the use of vaccines

	I	II	III	IV
(a)	T	F	T	F
(b)	F	F	T	T
(c)	T	F	F	T
(d)	T	F	T	T

178. The B - lymphocytes and T - lymphocytes provide which type (s) of acquired immunity

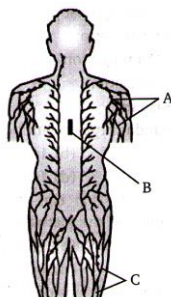
- (a) Humoral immunity/antibody mediated immunity and cell mediated immunity respectively
- (b) Humoral immunity
- (c) Cell mediated immunity
- (d) Antibody mediated immunity

179. Identify A, B, C, D, E, F and G as labeled in the diagram.



Options	A	B	C	D	E	F	G
(a)	Light chain	Disulphide bond	Light chain	Variable region of heavy chain	Variable region of light chain	Constant region of light chain	Constant region of heavy chain
(b)	Light chain	Disulphide bond	Light chain	Constant region of heavy chain	Constant region of light chain	Variable region of light chain	Variable region of light chain

180. Identify the structure A, B and C related to the immunity system

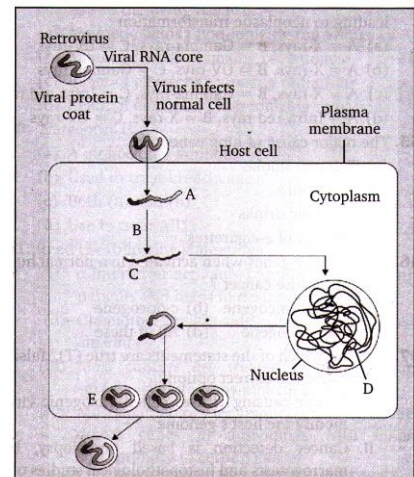


	A	B	C
(a)	T - lymphocytes mature here	Thymus	Lymphatic vessels
(b)	Lymph nodes	T - lymphocytes mature here	Lymphatic vessels
(c)	Thymus	Lymph nodes	Lymphatic vessels
(d)	Lymphatic vessels	Lymph nodes	Thymus

181. The spleen:

- (a) Contains lymphocytes, phagocytes and is a large reservoir of RBCs
- (b) Is large bean - shaped organ
- (c) Acts as a filter of the blood by trapping blood-borne micro - organisms
- (d) Is related to all of the above options

182. Identify A, B, C, D and E in the diagrammatic representation of life cycle of a retrovirus (e.g., HIV)



Options	A	B	C	D	E
(a)	Viral DNA	Reverse transcriptase	Viral RNA	Viral RNA incorporated into host genome	New viruses produced
(b)	Viral DNA	Reverse transcriptase	Viral DNA	Viral DNA incorporated into host genome	New viruses produced
(c)	Viral RNA	Reverse transcriptase	Viral RNA	Viral RNA incorporated into host genome	New viruses produced
(d)	Viral RNA	Reverse transcriptase	Viral DNA	Viral DNA incorporated into host genome	New viruses produced

183. Find out which of the statement are true (T)/false (F) and choose the correct option

- I. Cancer causing viruses called oncogenic viruses modify the host's genome
- II. Cancer detection is based on biopsy, bone marrow tests and histopathological studies of the tissue and blood
- III. Techniques like radiography (X - rays) compounded tomography (CT) and magnetic resonance imaging (MRI) are very useful to detect cancers of internal organs
- IV. Antibodies against cancer - specific antigens are used for the detection of certain cancers

	I	II	III	IV
(a)	T	T	T	F
(b)	T	F	F	T
(c)	T	T	T	T
(d)	F	F	F	T

184. Identify the plant A, B and C which yield the popular drugs



A



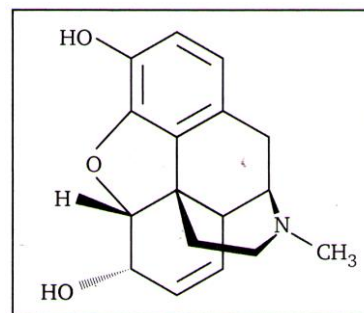
B



C

Options	A	Drug	B	Drug	C	Drug
(a)	Cannabis	Cannabinoid	Datura	Morphine	Papaver	Hallucinogen
(b)	Cannabis	Morphine	Datura	Cannabinoid	Papaver	Hallucinogen
(c)	Cannabis	Cocaine	Datura	Hallucinogen	Papaver	Morphine
(d)	Cannabis	Cannabinoid	Datura	Hallucinogen	Papaver	Morphine

185. Choose the correct option for the chemical structure shown



- (a) It is depressant and slows down body function
- (b) It is obtained from *Atropa belladonna*
- (c) It is obtained from *Cannabis sativa*
- (d) It has hallucinating properties

SECTION - B

186. Match the columns:

Column I	Column II
A. Oxytocin	p. Stimulates ovulation
B. Prolactin	q. Implantation and maintenance of pregnancy
C. Luteinising hormone	r. Lactation after child birth
D. Progesterone	s. Uterine contraction during labour
	t. Reabsorption of water by nephrons

	a	b	c	d
(a)	s	r	p	q
(b)	s	r	p	s
(c)	s	q	r	t
(d)	t	p	s	r

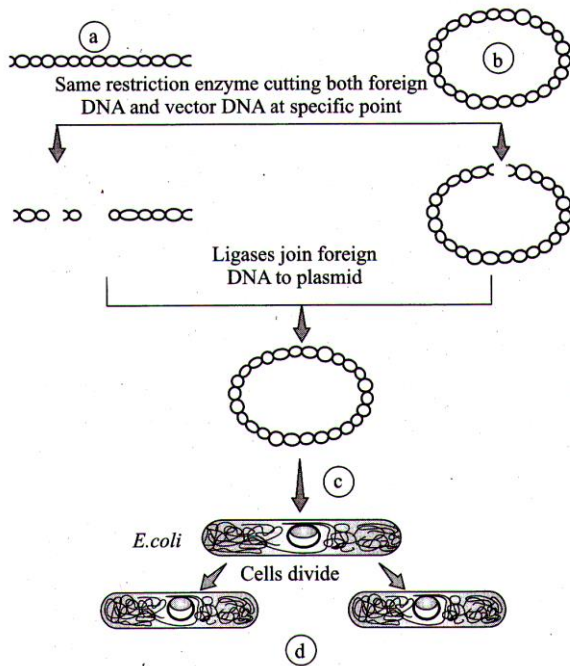
187. Klinefelter's syndrome is caused due to the

- (a) Presence of an additional copy of the chromosome number 21
- (b) Absence of one of the X - chromosome, i.e., 45 with XO
- (c) Presence of an additional copy of X - chromosome resulting into a karyotype of 47, XXY
- (d) Presence of an additional copy of chromosome number 17.

188. Probability of male child of haemophilic, father and normal mother becoming haemophilic is

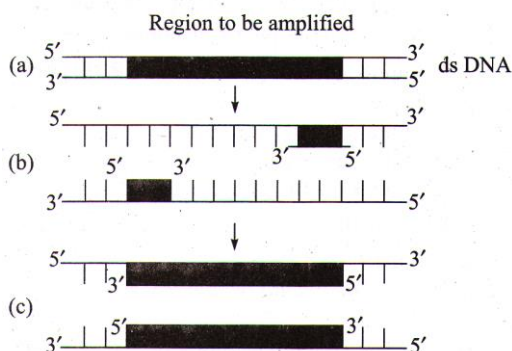
- (a) 0%
- (b) 25%
- (c) 50%
- (d) 100%

189. Recognize the figure and find out the correct matching.



- (a) a - foreign DNA, b - vector DNA, c - translation, d - PCR
 (b) a - vector DNA, b - foreign DNA, c - transduction, d - electrophoresis
 (c) a - foreign DNA, b - vector DNA, c - transformation, d - rDNA technology
 (d) a - vector DNA, b - foreign DNA, c - transformation, d - rDNA technology
190. The word 'restriction' in restriction enzyme refers to
 (a) Cutting of DNA at specific position only
 (b) Cleaving of phosphodiester linkage
 (c) Prevention of the multiplication of bacteriophage in bacteria
 (d) All of the above

191. In the three steps (a, b, c) of polymerase chain reaction, select the correct step.



- (a) c - extension in presence of heat stable DNA polymerase
 (b) a - annealing with two sets of primers
 (c) b - denaturation at high temperature
 (d) a - denaturation at 50°C

192. Read the following statements and find out the incorrect statements.

- (A) Barrier methods are available for both males and females.
 (B) In barrier methods, ovum and sperms are prevented from physically meeting with the help of barriers.
 (C) Condoms are made of thin rubber/ latex sheath that are used to cover the penis in male of vagina and cervix in the female, just before coitus so that the ejaculated semen would not enter into the female reproductive tract.
 (D) Both the male and the female condoms are reusable, can be self - inserted and thereby gives privacy to the user.
 (E) Diaphragms, cervical caps and vaults are barriers made of rubber that are inserted into the female reproductive tract to cover cervix during coitus. These barriers are disposable.

- (a) A and B (b) B and C
 (c) C and D (d) D and E

193. Which of the following is incorrect?

- (a) Implantation of embryo occurs in morula stage
 (b) Fertilization is a physico - chemical process
 (c) Fertilization occurs in fallopian tube
 (d) After a sperm has penetrated an ovum, the entry of other sperms is prevented by the development of fertilization membrane

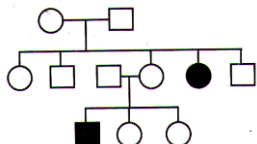
194. Find the true (T)/false(F) statements and choose the correct option w.r.t. pregnancy:

- I. The trophoblast layer of blastocyst gets attached to the endometrium into embryo
 II. After the attachment of blastocyst to the endometrium, the uterine cells divide rapidly and covers the blastocyst
 III. Blastocyst finally gets embedded in the endometrium of the uterus which is called implantation
 IV. After implantation embryo gets nutrition from yolk sac.

Option	I	II	III	IV
(a)	T	T	T	F
(b)	T	T	F	F
(c)	T	F	T	F
(d)	T	F	F	T

195. Male are more often affected by sex - linked traits than females because:
- X - chromosomes in males generally have more mutations than X - chromosomes in females
 - Males are hemizygous
 - Mutation on the Y chromosomes often worsens the effects of X - linked mutation
 - Male hormones like testosterone often alter the effects of mutations on X - chromosome

196. Study the pedigree chart of certain family given below and select the correct conclusion which can be drawn for the character:



- The trait under study could be haemophilia
 - Inheritance of a condition sickle cell anemia as an autosomal recessive trait
 - Both the parent is homozygous dominant
 - Only female parent is homozygous recessive
197. Read the following statements:
- Though all persons are vulnerable to STDs, their incidences are common in the age group of 15 - 24 years
 - HIV can be prevented by avoiding sex with unknown partners or multiple partners and use of condoms
 - The reason for infertility can be physical congenital diseases, drugs, immunological or even psychological
 - ART stands for artificial reproductive technologies.
 - Government of India legalized MTP in 1971 without any applied restriction

How many of the above statements are correct?

- Three
- Two
- Five
- Four

198. Arrange the stages of life cycle of Plasmodium starting from human host and ending in mosquito host.
- RBC releases the toxic haemozoin
 - Parasite reproduces asexually in liver cells
 - Parasites attack RBC
 - Sporozoites enter human body through the mosquito bite
 - Mature sporozoites escape from intestine and migrate to the mosquito's salivary gland
 - Fertilization of gametocytes occur in mosquito's intestine
 - Mosquito takes up gametocytes while sucking blood of an infected person
- IV → II → I → III → VII → V → VI
 - I → II → III → V → VI → IV → VII
 - IV → II → III → I → VII → VI → V
 - III → IV → II → I → V → VII → VI

199. Read the following statements
- Malignant tumors are the mass of non - proliferating cells called neoplastic cells
 - Malignant tumor starves the normal cells by competing for vital nutrients
 - Cells of malignant tumors show metastasis
 - The cells of malignant tumor severely loses the property of contact inhibition
 - The cells sloughed from benign tumor reach distant sites through blood, where they get lodged to start a new tumor
- How many of the above statements are correct?
- Five
 - Four
 - Two
 - Three

200. Biological agents causing cancer is:
- X - rays
 - UV - rays
 - Formaldehyde
 - Certain viruses

TEST ASSESSMENT AND ANALYSIS SHEET

Name.....Test topic -Date

Physics	Marks per question	Total Ques.	Attempted	Unattempted	Correct	Incorrect	Net score
Multiple choice questions							
Q. No. (Incorrect)							
Q. No. (Unattempted)							
Chemistry	Marks per question	Total Ques.	Attempted	Unattempted	Correct	Incorrect	Net score
Multiple choice questions							
Q. No. (Incorrect)							
Q. No. (Unattempted)							
Biology	Marks per question	Total Ques.	Attempted	Unattempted	Correct	Incorrect	Net score
Multiple choice questions							
Q. No. (Incorrect)							
Q. No. (Unattempted)							
Total net score							

