



Sky Tutorials

fly beyond the sky...

IIT-JEE | NEET | Foundation

NEET



Time: 200 Minute

M.M. 720

ALL INDIA SKY TEST SERIES

Pulse Batch – Neet

Date : 16/10/2023

SYLLABUS

PHYSICS	CHEMISTRY	BOTANY	ZOOLOGY
Previous + Elasticity	Previous + Chemical Bonding + Periodic Table + Isomerism	Anatomy of Flowering Plants	Human genetic

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

INSTRUCTIONS:

- This Question paper is divided in to four parts physics, chemistry, botany, zoology and each part is further divided into two sections.
Section -A contains 35 Questions Section B contains 15 questions. Please ensure that the Questions paper you have received contains **ALL THE QUESTIONS** in each Part.
- In Section A all the 35 Questions are compulsory and in Section B Contain 15 Question, out of these 15 Questions, candidates can choose to attempt any 10 Questions.
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

- Use only **blue/black pen (avoid gel pen)** for darkening the bubble.
- Indicate the correct answer for each question by filling appropriate bubble in your **OMR** answer sheet.
- 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**
- 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 wire of length L and radius r is rigidly fixed at one end. On stretching the other end of the wire with a force F , the increase in its length is l . If another wire of same material but of length $2L$ and radius $2r$ is stretched with a force of $2F$, the increase in its length will be.

(a) l (b) $2l$ (c) $\frac{l}{2}$ (d) $\frac{l}{4}$

2. A wire elongates by 1.0 mm when a load W is hanged from it. If this wire goes over a pulley and two weights W each are hung at the two ends, the elongation of the wire will be.

(a) 0.5 mm (b) 1.0 mm
(c) 2.0 mm (d) 4.0 mm

3. A wire can sustain the weight of 20 kg before breaking. If the wire is cut into two equal parts, each part can sustain a weight of.

(a) 10 kg (b) 20 kg (c) 40 kg (d) 80 kg

4. A metal ring of initial radius r and cross-sectional area A is fitted onto a wooden disc of radius $R > r$. If Young's modulus of the metal is Y then tension in the ring is.

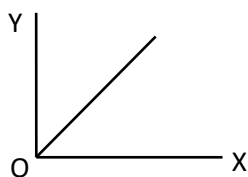
(a) $\frac{AYR^2}{r}$ (b) $\frac{AY(R-r)}{r}$
(c) $\frac{Y}{A} \frac{(R-r)}{r}$ (d) $\frac{Yr}{AR}$

5. The length of a metal wire is L_1 when the tension in it is T_1 and is L_2 , when the tension is T_2 . The natural length of the wire is.

(a) $\frac{L_1 + L_2}{2}$ (b) $\sqrt{L_1 L_2}$
(c) $\frac{L_1 T_2 - L_2 T_1}{T_2 - T_1}$ (d) $\frac{L_1 T_1 + L_2 T_2}{T_2 + T_1}$

6. A student plots a graph from his readings on the determination of Young's modulus of a metal wire but forget to put the labels (figure). The quantities on X and Y-axis may be respectively.

(i) weight hung and length increased
(ii) stress applied and length increased
(iii) stress applied and strain developed
(iv) length increased and the weight hung



(a) (i), (iii), (iv) (b) (ii), (iii), (iv)
(c) (i), (ii), (iii) (d) all

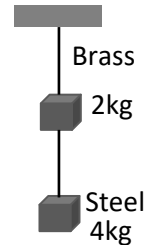
7. If the work done in stretching a wire by 1 mm is 2 J, the work necessary for stretching another wire of the same material but double the radius and half the length by 1 mm is.

(a) 16 J (b) 8 J (c) 4 J (d) $(1/4)$ J

8. A rubber cord catapult has cross-sectional area 25 mm² and initial length of rubber cord is 10 cm. It is stretched to 5 cm and then released to project a missile of mass 5 g. Taking $Y_{rubber} = 5 \times 10^8 \text{ N/m}^2$, velocity of projected missile is.

(a) 20 ms⁻¹ (b) 100 ms⁻¹
(c) 250 ms⁻¹ (d) 200 ms⁻¹

9. If the ratio of lengths, radii and Young's modulus of steel and brass wire shown in the figure are a , b and c , respectively. The ratio between the increase in lengths of brass and steel wire would be.



(a) $\frac{b^2 a}{2c}$ (b) $\frac{bc}{2a^2}$ (c) $\frac{3b^2 c}{2a}$ (d) $\frac{a}{2b^2 c}$

10. The compressibility of water is 4×10^{-5} per unit atmospheric pressure. The decrease in volume of 100 cm³ of water, under a pressure of 100 atmosphere, will be.

(a) 0.4 cm³ (b) 4×10^{-5}
(c) 0.025 cm³ (d) 0.004 cm³

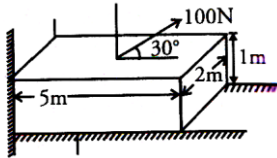
11. If a rubber ball is taken down to a 100 m deep lake, its volume decreases by 0.1%. If $g = 10 \text{ m/s}^2$ then the bulk modulus of elasticity for rubber, in N/m², is.

(Density of water = 10^3 kg/m^3)
(a) 10^8 (b) 10^9 (c) 10^{11} (d) 10^{10}

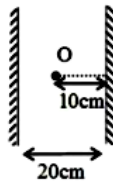
12. When a block of mass M is suspended by a long wire of length L , the length of the wire becomes $(L + l)$. The elastic potential energy stored in the extended wire is

(a) MgL (b) $\frac{1}{2}Mgl$ (c) $\frac{1}{2}MgL$ (d) Mgl

13. The longitudinal stress and tangential stress on the fixed block shown in the figure is.

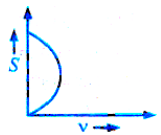
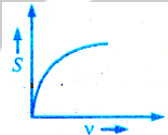
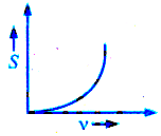
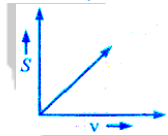


- (a) 5 N/m^2 , $5\sqrt{3} \text{ N/m}^2$
 (b) 4 N/m^2 , $5\sqrt{3} \text{ N/m}^2$
 (c) 5 N/m^2 , $5\sqrt{2} \text{ N/m}^2$
 (d) 2 N/m^2 , $3\sqrt{3} \text{ N/m}^2$
14. A ray of light is incident at an angle of 60° on one face of a prism of angle 30° . The emergent ray of light makes an angle of 30° 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°
15. 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
16. 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.



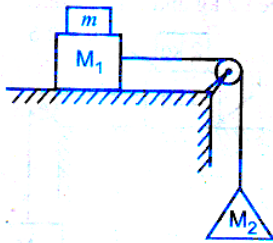
- (a) 80 cm (b) 60 cm
 (c) 40 cm (d) 10 cm
17. A point object moving with velocity $\vec{v} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ in front of a moving plane mirror whose normal is along x-axis. The mirror is moving with velocity $\vec{v}_m = \hat{i} - 4\hat{j} + 2\hat{k}$. Find the velocity vector of image.
 (a) $-5\hat{j}$ (b) $-3\hat{j} + 4\hat{k}$
 (c) $-4\hat{j} + 2\hat{k}$ (d) $2\hat{i} - 3\hat{j} + 2\hat{k}$
18. 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.

19. 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
20. A fish looking 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) $4\sqrt{5}$
21. The field view is maximum for.
 (a) Plane mirror
 (b) Concave mirror
 (c) Convex mirror
 (d) Cylindrical mirror
22. 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) $\sin^{-1}\left(\frac{2}{\sqrt{13}}\right)$
23. 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
24. A person is moving eastward with a speed of 5 ms^{-1} and in 10 s, the speed changes to 5 ms^{-1} northwards. The average acceleration will be :
 (a) Zero
 (b) $\frac{1}{\sqrt{2}} \text{ ms}^{-2}$ towards N-W
 (c) $\frac{1}{2} \text{ ms}^{-2}$ towards N-W
 (d) $\frac{1}{2} \text{ ms}^{-2}$ towards N-E
25. A particle moving along a straight line has a velocity $v \text{ ms}^{-1}$. It covers a distance of z metres and is connected with a relation $v = \sqrt{z+49}$. When the velocity is 1 ms^{-1} , then its acceleration (in ms^{-2}) is :
 (a) 1 (b) 0.75 (c) 0.5 (d) 0.25

26. Two cars get closer by 8 m every second while travelling in opposite directions. They get closer by 0.8 m while travelling in the same direction. The speed of the two cars will be :
- (a) 4 ms^{-1} and 4.4 ms^{-1}
 (b) 4.4 ms^{-1} and 3.6 ms^{-1}
 (c) 4 ms^{-1} and 3.6 ms^{-1}
 (d) 4 ms^{-1} and 3 ms^{-1}
27. A student not believing his physics teachers explanation of law of gravity, starts his free fall from the top of a 320 m high building with a stop watch. After 5s, Shaktiman dives off the roof to save the student. What must be the initial velocity of Shaktiman in order that he catches the student just before the ground is reached:
- (a) 67.23 ms^{-1} (b) 91.66 ms^{-1}
 (c) 102.91 ms^{-1} (d) 105.75 ms^{-1}
28. An object is moving with a uniform acceleration which is parallel to its direction of motion. The displacement velocity graph of this object is :
- (a)  (b) 
 (c)  (d) 
29. A point is shifted from $(7\hat{i} + 7\hat{j} + 8\hat{k}) \text{ m}$ to $(2\hat{i} + 3\hat{j} + 4\hat{k}) \text{ m}$ due to application of force $(5\hat{i} + 4\hat{j} + 10\hat{k}) \text{ N}$. The gain in K.E. of that point will be :
- (a) 81 J (b) 49 J (c) 11 J (d) 9 J
30. The distance travelled by an object along the axis are given by $x = 3t^3$, $y = 2t^2 + 8t$ and $z = 6t - 5$. The initial velocity of the particle is :
- (a) 20 units (b) 10 units
 (c) 5 units (d) 13 units
31. A projectile is fired with speed ' u ' making an angle θ with the horizontal. The potential energy of the projectile at the highest point of trajectory will be :
- (a) $\frac{1}{2} \mu u^2$ (b) $\frac{1}{2} \mu u^2 \sin 2\theta$
 (c) $\frac{1}{2} \mu u^2 \sin^2 \theta$ (d) $\frac{1}{2} \mu u^2 \cos^2 \theta$
32. The maximum height attained by the projectile is increased by 5%. Keeping the angle of projection constant, the percentage increase in the horizontal range will be :
- (a) 20% (b) 15% (c) 10% (d) 5%
33. The angle of projection at which the horizontal range and maximum height of projectile are equal is
- (a) 45°
 (b) $\theta = \tan^{-1}(0.25)$
 (c) $\theta = \tan^{-1} 4$
 (d) 60°
34. A body of mass 1 kg is rotating in a vertical circle of radius 1 m. What will be the difference in its kinetic energy at the top and bottom of the circle: ($\because g = 10 \text{ ms}^{-2}$)
- (a) 10 J (b) 20 J (c) 30 J (d) 50 J
35. For a dry road, the coefficient of friction is μ . The maximum speed of a car along a circular path is 10 ms^{-1} . If the road becomes wet, the coefficient of friction becomes $\mu/2$, then the maximum permitted speed will be :
- (a) 5 ms^{-1} (b) 10 ms^{-1}
 (c) $10\sqrt{2} \text{ ms}^{-1}$ (d) $5\sqrt{2} \text{ ms}^{-1}$

SECTION -B

36. An object of mass 3 kg is at rest. Now a force of $\vec{F} = 6t^2 \hat{i} + 4t \hat{j}$ is applied on the object. Then the velocity of the object at $t = 3 \text{ s}$ is :
- (a) $18\hat{i} + 3\hat{j}$ (b) $18\hat{i} + 6\hat{j}$
 (c) $3\hat{i} + 18\hat{j}$ (d) $18\hat{i} + 4\hat{j}$
37. A body of mass m is moving in a horizontal circular path of radius ' r ' under a centripetal force of k/r^2 . The K. E. of the particle is :
- (a) k/r (b) k^2/r (c) k/r^2 (d) $k/2r$
38. The engine of a car produces an acceleration of 6 ms^{-2} in the car. If this car pulls another car of the same mass, then the acceleration would be :
- (a) 6 ms^{-2} (b) 12 ms^{-2}
 (c) 3 ms^{-2} (d) 1.5 ms^{-2}
39. A bomb of mass 16 kg at rest explodes into two pieces of masses 4 kg and 12 kg. The velocity of the 12 kg mass is 4 ms^{-1} . The kinetic energy of the other mass is :
- (a) 288 J (b) 192 J (c) 96 J (d) 144 J
40. Two blocks of masses M_1 and M_2 are connected with a string passing over a pulley as shown in the figure. The block M_1 lies on a horizontal surface. The coefficient of friction between the block M_1 and the horizontal surface is μ . The system accelerates. What additional mass m should be placed on the block M_1 so that the system does not accelerate?



- (a) $\frac{M_2 - M_1}{\mu}$ (b) $\frac{M_2}{\mu} - M_1$
 (c) $M_2 - \frac{M_1}{\mu}$ (d) $(M_2 - M_1)\mu$

41. A light string passing over a smooth light pulley connects two blocks of masses m_1 and m_2 (vertically). If the acceleration of the system is $g/8$, then the ratio of masses is :

- (a) 8 : 1 (b) 9 : 7 (c) 4 : 3 (d) 5 : 3

42. A block moving up an inclined plane of inclination 60° with a velocity of 20 ms^{-1} stops after 2 s. The value of coefficient of friction is : ($g = 10 \text{ ms}^{-2}$)

- (a) 3 (b) 3.3 (c) 0.27 (d) 0.33

43. A mass M is lowered with the help of a string by a distance 'h' at a constant acceleration $g/2$. The work done by the string will be :

- (a) $Mgh/2$ (b) $-Mgh/2$
 (c) $3Mgh/2$ (d) $-3Mgh/2$

44. Under the action of force, a 2 kg body moves such that its position x as a function of time 't' is given by $x = \frac{t^3}{3}$ where x is in metre and t is in second.

Then the work done by the force in the first two seconds is

- (a) 1.6 J (b) 16 J (c) 160 J (d) 1600 J

45. A car is moving along a straight road with a speed of 72 kmh^{-1} . The coefficient of static friction between the road and tyres is 0.5. The shortest distance in which the car can be stopped is :

- (a) 30 m (b) 40 m (c) 72 m (d) 20 m

46. A ball is thrown vertically upwards with a velocity of 10 ms^{-1} . It return to the ground with a velocity of 9 ms^{-1} . The maximum height attained by the ball is : ($g = 9.8 \text{ m/s}^2$)

- (a) 5.1 m (b) 4.1 m (c) 4.61 m (d) 5 m

47. A bullet fired at a target with a speed of 100 ms^{-1} penetrates one metre into it. If the bullet is fired with the same system at a target of thickness 0.5 m, then it will emerge from it with a velocity of

- (a) $50\sqrt{2} \text{ ms}^{-1}$ (b) $\frac{50}{\sqrt{2}} \text{ ms}^{-1}$
 (c) 50 ms^{-1} (d) 10 ms^{-1}

48. A particle moves in a straight line with retardation proportional to its displacement. Its loss of K.E. for any displacement x is proportional to :

- (a) x^2 (b) e^x (c) x (d) $\log_e x$

49. A car drives along a straight level frictionless road by an engine delivering constant power. Then velocity is directly proportional to :

- (a) t (b) $\frac{1}{\sqrt{t}}$ (c) \sqrt{t} (d) $t^{3/2}$

50. An engine pumps water continuously through a hole. The speed with which the water passes through the hole nozzle is v and k is mass per unit length of water jet as it leaves the nozzle. The rate at which the kinetic energy is being imparted to water will be :

- (a) $\frac{1}{2}kv^2$ (b) $\frac{1}{2}kv^3$ (c) $\frac{v^2}{2k}$ (d) $\frac{v^3}{2k}$

CHEMISTRY

SECTION - A

51. Which has greater lattice energy ?

- (a) KBr (b) LiF
 (c) MgO (d) All have same lattice energy

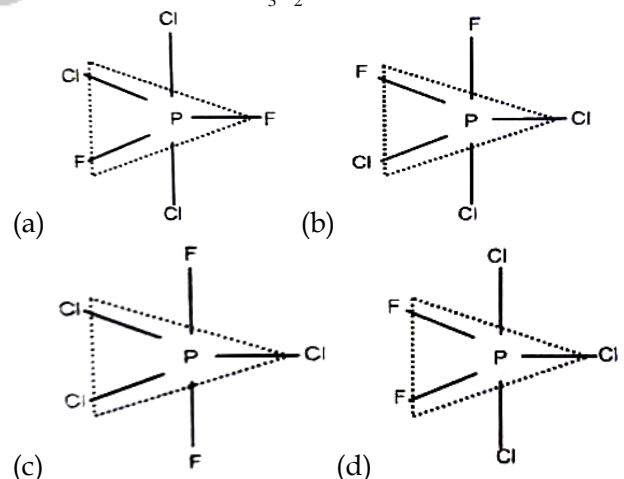
52. Hybridisation of Xe in XeO_2F_2 is

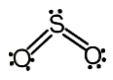
- (a) sp^3 (b) sp^3d
 (c) sp^3d^2 (d) sp

53. The ONO bond angle is maximum in

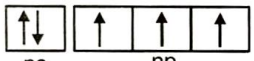
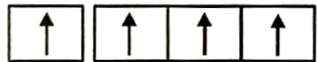
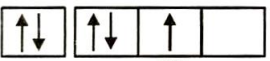
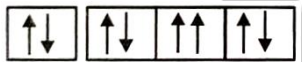
- (a) NO_2^- (b) NO_3^-
 (c) NO_2^+ (d) All have same bond angle

54. The structure of PCl_3F_2 is



55. Which of the following is correct ?
 (a) O_2^{2-} is more stable than O_2^{2+}
 (b) N_2^{2-} is more stable than N_2^+
 (c) O_2^+ is more stable than O_2^-
 (d) O_2 is more stable than O_2^{2+}
56. Which of the following statement is correct ?
 (a) Bond order of CO is greater than CO^+
 (b) CO is paramagnetic
 (c) CO^+ is diamagnetic
 (d) Bond order of CO^+ is greater than CO
57. Which of the following statement is correct ?
 (a) Orthonitrophenol is less volatile than paranitrophenol
 (b) Orthonitrophenol has more boiling point than para nitrophenol
 (c) Paranitrophenol has more boiling point than orthonitrophenol
 (d) Ortho and para nitrophenol has same volatility
58. O-P-X (X= halogen) bond angle is maximum in
 (a) POF_3 (b) $POCl_3$
 (c) $POBr_3$ (d) POI_3
59. The number of π bond and σ bonds in a molecule of tetracyano ethylene are
 (a) 9,9 (b) 9, 10
 (c) 10, 9 (d) 10, 10
60. Experimentally determined molecular mass of acetic acid (CH_3COOH) is 120 instead of 60. This is due to the formation of
 (a) Intermolecular H-bond
 (b) Intramolecular H-bond
 (c) Covalant bond
 (d) Co-ordinate covalant bond
61. Select from the following that exists dominantly
 (a) HF_2^- (b) HBr_2^- (c) HCl_2^- (d) HI_2^-
62. Which of the following has largest size in aqueous medium ?
 (a) Li^+ (b) Na^+ (c) Cs^+ (d) K^+
63. The correct order of sigma bond strength corresponding to the given overlaps is
 (a) $s-s > s-p > p-p$
 (b) $s-s > p-p > s-p$
 (c) $s-s > s-p = p-p$
 (d) $s-s < s-p < p-p$
64. Formal charge of S atom in 
 (a) Zero (b) 2 (c) 3 (d) 1
65. Which of the following molecules will have the same number of σ and π electrons ?
 (a) N_2 (b) CO_2
 (c) CH_3CN (d) C_2H_2
66. Choose the compound having highest melting point
 (a) MgO (b) ScN (c) TiC (d) NaF
67. The maximum number of 90° angles between bond pair-bond pair of electrons is observed in
 (a) sp^3 hybridisation (b) sp^3d hybridisation
 (c) dsp^2 hybridisation (d) sp^3d^2 hybridisation
68. The correct decreasing order of bond angle is
 (a) $NH_4^+ > NH_3 > NH_2^-$
 (b) $NH_2^- > NH_3 > NH_4^+$
 (c) $NH_3 > NH_2^- > NH_4^+$
 (d) $NH_4^+ > NH_2^- > NH_3$
69. Intermolecular attractive forces vary in the order
 (a) Water < alcohol < ether
 (b) Water > alcohol > ether
 (c) Alcohol > water < ether
 (d) Ether > water > alcohol
70. Which of the following single bond is of highest bond enthalpy value ?
 (a) H-H (b) C-C (c) O-O (d) Cl-Cl
71. Lattice energy of an ionic solid depends upon
 (a) Charge of the ions
 (b) Radius of the ions
 (c) Permittivity of medium
 (d) All of these
72. Find the formal charge on N atom in the following structure
 $\ddot{C} \equiv N^-$
 (a) +1 (b) -1 (c) 0 (d) -2
73. The correct order of strength of ionic bond is
 (a) $AlF_3 > MgF_2$ (b) $AlF_3 < Al_2O_3$
 (c) $NaF < LiF$ (d) All are correct
74. Which of teh following is isostructural pair ?
 (a) NF_3 and BF_3 (b) BF_4^- and NH_4^+
 (d) BCl_3 and $BrCl_3$ (d) NH_3 and NO_3^-

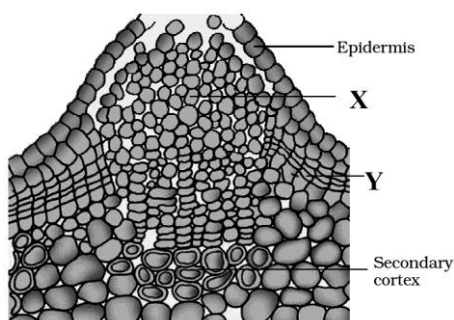
- SECTION - B**
75. The bond dissociation energy of H_2^+ , H_2^- and H_2 are in the order :
- (a) $H_2^+ > H_2 > H_2^-$ (b) $H_2^- > H_2^+ > H_2$
 (c) $H_2 > H_2^+ > H_2^-$ (d) $H_2^- > H_2 > H_2^+$
76. Select the correct statement
- (a) In C_2 molecules two π bonds are present
 (b) For conversion of $CO \rightarrow CO^+$ electron is removed from $O^+ 2s$ antibonding molecular orbital
 (c) $N(SiH_3)_3$ has trigonal planar shape and N-atom is sp^2 hybridised
 (d) All are correct
77. Which of the following ionic compounds has maximum lattice enthalpy ?
 (a) NaF (b) LiI (c) LiF (d) CsI
78. Which of the following transition(s) lead(s) to increase in bond order ?
 (a) $NO \rightarrow NO^{\oplus}$ (b) $CO \rightarrow CO^{\oplus}$
 (c) $O_2 \rightarrow O_2^{\oplus}$ (d) All of the above
79. P-O bond order in PO_4^{3-} is
 (a) 1.25. (b) 1.5 (c) 1 (d) 2
80. The hybridisation of central atom in ICl_2^+ is
 (a) dsp^2 (b) sp (c) sp^2 (d) sp^3
81. Which of the following possess two lone pair of electrons on the central atom and square planar shape ?
 (i) SF_4 (ii) XeO_4 (iii) XeF_4 (iv) ICl_4^-
 (a) i, iv (b) ii, iii (c) i, iii (d) iii, iv
82. Which of the following is non polar ?
 (a) PCl_3F_2 (b) SF_4
 (c) PF_3Cl_2 (d) NF_3
83. During change of O_2 into O_2^- ion, the electron goes to which one of the following orbitals ?
 (a) π^* orbital (b) π orbital
 (c) σ^* orbital (d) σ orbital
84. Considering z-axis as the molecular axis, which of the following combinations give a non-bonding overlap ?
 (a) $p_z + p_z$ (b) $s + p_x$
 (c) $O_2 \rightarrow O_2^+$ (d) $N_2 \rightarrow N_2^+$
85. Hybridization of central 'P' in solid PBr_5 is/are
 (a) sp^3d only (b) sp^3 only
 (c) sp^3 and sp^3d^2 (d) sp^2 only
86. Which one is not endothermic reaction ?
 (a) $O^- + e^- \rightarrow O^{2-}$ (b) $O^+ \rightarrow O^{+2} + e^-$
 (c) $O + e^- \rightarrow O^-$ (d) $O \rightarrow O^+ + e^-$
87. 1st IP of elements of Boron family is
 (a) $B > Al > Ga > In > Tl$
 (b) $B < Al > Ga < In < Tl$
 (c) $B > Tl > Ga > Al > In$
 (d) $B > Tl > Ga > In > Al$
88. The most electronegative chlorine is present in
 (a) $HClO_2$ (b) $HClO_3$
 (c) $HClO$ (d) $HClO_4$
89. The correct order of electron affinity is
 (a) $F > Cl > Br > I$ (b) $S > Se > Te > Po > O$
 (c) $O > S > Se > Te > Po$ (d) $Cl > Br > F > I$
90. Select the correct statement
 I. Electron gain enthalpy of noble gases are high positive value
 II. Electron affinity value of halogens are highly positive
 III. 1st electron gain enthalpy of most of the elements are negative while successive electron gain enthalpies are positive
 IV. Electron affinity of Be and N are maximum positive
 (a) Only IV (b) I and II
 (c) I and III (d) I, II and III
91. Find the incorrect from the following :
 (a) $PCl_5(g) \rightarrow PCl_3(g) + Cl_2(g) (\Delta H = \Delta E)$
 (b) $2HI(g) \rightarrow H_2(g) + I_2(g) (\Delta H = \Delta E)$
 (c) $C(s) + H_2O(g) \rightarrow CO(g) + H_2(g) (\Delta H > \Delta E)$
 (d) All of these
92. In which of the following reaction maximum amount of heat is evolved ?
 (a) $HNO_3(aq) + NaOH(aq)$
 (b) $CH_3COOH(aq) + NaOH(aq)$
 (c) $HCl(aq) + NH_4OH(aq)$
 (d) $HF(aq) + NaOH(aq)$
93. 110J of heat are added to a gaseous system and its internal energy increases by 40 J. The amount of workdone involved is
 (a) 30 J (b) 40 J (c) 70 J (d) 80 J
94. What is the amount of work done by 2 mole of He in a single step adiabatic expansion process when the temperature changes from $77^\circ C$ to $27^\circ C$?
 (a) 300R (b) 400R (c) 500R (d) 150R

95. pH of 10^{-8} M HCl is –
 (a) 8 (b) 4 (c) 6.9 (d) 7.9
96. Calculate the pOH of the equimolar mixture of NH_4OH and NH_4Cl .
 (given K_b for $\text{NH}_4\text{OH} = 2 \times 10^{-5}$)
 (a) 9.3 (b) 12 (c) 4.7 (d) 67
97. Solubility of $\text{Ag}_2\text{CrO}_4(\text{s})$ is maximum in
 (a) 0.1 M of AgNO_3 Solution
 (b) 0.1 M of H_2CrO_4 Solution
 (c) 0.1 M NaCN Solution
 (d) Pure water
98. Which of the following reactions will products increased amount of product on addition of He gas at constant pressure ?
 (a) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$
 (b) $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$
 (c) $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$
 (d) All of the above
99. Which of the following is wrong arrangement according to Pauli's exclusion principle ?
- (a) 
- (b) 
- (c) 
- (d) 
100. The molality(m) of a solution of ethanol in water, when mole fraction of ethanol is 0.040.
 (a) 2.31 (b) 3.12 (c) 1.73 (d) 4.01

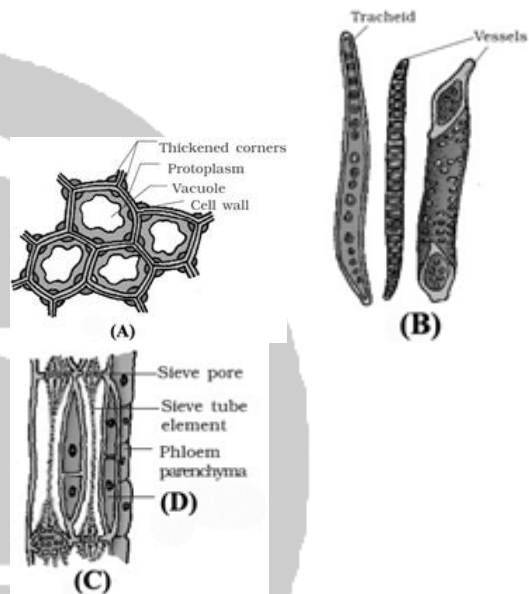
BOTANY

SECTION - A

101. What is true for the structure marked as X and Y?



- (a) X is the result of redifferentiation whereas Y is the result of dedifferentiation
 (b) X is the result of differentiation whereas Y is the result of redifferentiation
 (c) Both X and Y is the result of dedifferentiation
 (d) X is the result of dedifferentiation whereas Y is the result of redifferentiation
102. The epidermal hairs present on stem, which prevent water loss due to transpiration is:
 (a) Root hairs (b) Filament
 (c) Trichomes (d) None of these
103. Identify A, B, C and D in the following diagrams:



- (a) A - Xylem, B - Phloem, C - Collenchyma and D - Companion cells
 (b) A - Collenchyma, B - Xylem, C - Phloem and D - Companion cells
 (c) A - Collenchyma, B - Phloem, C - Xylem and D - Companion cells
 (d) A - Companion cells, B - Phloem, C - Xylem and D - Collenchyma
104. Which of the following is correct w.r.t. the function of the sclerenchyma?
 (a) Helps in food storage and secretion
 (b) Provides mechanical support
 (c) Performs photosynthesis
 (d) Helps in conduction of H_2O
105. Collenchyma differs from parenchyma
 (a) As it forms the major component of plant organs
 (b) Because it is found in monocot plants
 (c) As it has generally isodiametric cells
 (d) Because cells are thickened at the corners

106. Select the incorrect statement w.r.t. lateral meristem.
- Found in mature regions of roots and shoots
 - Generally not present from the very beginning of the life of a plant
 - Helps in increasing the girth of the stems and roots
 - Helps in increasing length of the plant
107. **Assertion:** Long distance flow of photoassimilates in plant occurs through sieve tubes.
Reason: Mature sieve tubes have peripheral cytoplasm and perforated sieve plates.
- If both assertion and reason are true and the reason is a correct explanation of the assertion.
 - If both assertion and reason are true but reason is not a correct explanation of the assertion.
 - If the assertion is true but reason is false
 - If both the assertion and reason are false.
108. Which of the following meristems are referred as primary meristems and helps in primary growth of plant?
- Intercalary meristem
 - Apical meristem
 - Lateral meristem
- (B) & (C)
 - (A) & (B)
 - (A) & (C)
 - Only (B)
109. In roots, the arrangement of xylem and vascular bundles is _____ and _____, respectively.
- Endarch, radial
 - Endarch, conjoint
 - Exarch, radial
 - Exarch, conjoint
110. How many of the given cells do not possess nucleus?
Companion cells, Albuminous cells, Mature sieve tube, Xylary fibres, Sclereids, Phloem parenchyma
- One
 - Three
 - Four
 - Two
111. Which of the following components of phloem is mostly absent in primary phloem?
- Companion cells
 - Phloem fibres
 - Sieve tube elements
 - Phloem parenchyma
112. A waxy thick layer generally covers the epidermis which prevent water loss, it is absent in
- Stem
 - Root
 - Leaves
 - Flower
113. In leaves, xylem and phloem are present
- On different radii and arrangement is called radial
 - On different radii and arrangement is called conjoint
 - At the same radius and arrangement is called radial
 - At the same radius and arrangement is called conjoint
114. All of the following statements are correct for guard cells except
- Bean shaped in dicots
 - Are green
 - Dumb-bell shaped in grasses
 - Outer walls are thick and the inner walls are thin
115. All tissues exterior to vascular cambium is called bark which includes
- Phellogen + secondary xylem
 - Periderm + secondary xylem
 - Periderm + secondary phloem
 - Cork cambium + primary xylem
116. Choose the correct option w.r.t. origin of vascular cambium in dicot root.
- Completely primary
 - Completely secondary
 - Partly primary partly secondary
 - Cambium is not formed at any stage
117. Choose the incorrect statement w.r.t. leaves.
- Nearly same size of vascular bundles are seen in monocot leaf
 - The stomata are present on both surfaces in isobilateral leaf
 - Mesophyll is not differentiated in dicot leaf
 - Mesophyll is photosynthetic in leaves
118. Starch sheath is found in
- Sunflower stem
 - Maize stem
 - Mango root
 - Rice root
119. Read the following statements.
- Monocotyledonous roots have fewer xylem bundles.
 - Monocotyledonous roots do not show secondary growth.
 - Dicot root has small pith.
 - Cortex of stem consists of thick walled parenchyma cells.
- Choose the correct option.
- (A) & (C)
 - (B) & (D)
 - (B) & (C)
 - (C) & (D)

120. Casparian strips are seen in
 (a) Dicot root (b) Monocot stem
 (c) Monocot root (d) All except (b)
121. Parenchymatous cells found between xylem and phloem in root represents
 (a) Conjunctive tissues (b) Medullary rays
 (c) Pith rays (d) Stele
122. Which is not correct about sclereids?
 (a) These are parenchyma cells with thickened lignified walls.
 (b) These are elongated and flexible with tapered ends.
 (c) These are commonly found in the shells of nuts and in the pulp of guava, pear, etc.
 (d) These are also called stone cells.
123. Match column-I with column-II and select the correct option from the codes given below.

	Column - I		Column - II
A.	Stele	I.	Innermost layer of cortex
B.	Endodermis	II.	Suberin
C.	Casparianstrips	III.	All the tissues exterior to vascular cambium
D.	. Bark	IV.	All the tissues inner to endodermis

- (a) A - IV, B - I, C - II, D - III
 (b) A - III, B - II, C - I, D - IV
 (c) A - I, B - II, C - III, D - IV
 (d) A - IV, B - II, C - I, D - III

124. Match column-I with column-II and choose the correct option

	Column - I		Column - II
A.	Bulliform cells	I.	Initiation of lateral roots
B.	Pericycle	II.	Root
C.	Endarch xylem	III.	Grasses
D.	. Exarch xylem	IV.	Dicot leaf
E.	Bundle sheath cells	V.	Stem

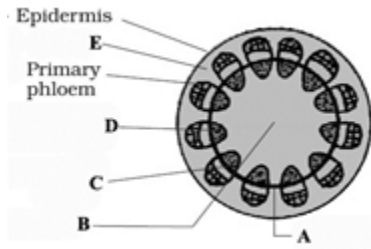
- (a) A - III, B - V, C - IV, D - I, E - II
 (b) A - II, B - V, C - I, D - III, E - IV
 (c) A - II, B - IV, C - I, D - III, E - V
 (d) A - III, B - I, C - V, D - II, E - IV

125. During the formation of leaves and elongation of stem, some cells 'left behind' from the shoot apical meristem, constitute the
 (a) Lateral meristem
 (b) Axillary bud
 (c) Cork cambium
 (d) Fascicular cambium

126. In dicot root
 (a) Vascular bundles are scattered and with cambium
 (b) Vascular bundles are arranged in a ring and have cambium
 (c) Xylem and phloem radially arranged
 (d) Xylem is always endarch
127. What is true about a monocot leaf?
 (a) Reticulate venation
 (b) Absence of bulliform cells from epidermis
 (c) Mesophyll not differentiated into palisade and spongy tissues
 (d) Well differentiated mesophyll
128. Best method to determine the age of tree is to
 (a) Measure its diameter
 (b) Count number of leaves
 (c) Count number of annual rings at base stem
 (d) Number of branches
129. A narrow layer of thin walled cells found between phloem/bark and wood of a dicot is
 (a) Cork cambium
 (b) Vascular cambium
 (c) Endodermis
 (d) Both (a) & (c)
130. Which one of the following option is correct about bulliform/motor cell?
 (a) It is seen in grasses.
 (b) It is large-sized, thin-walled colourless, vacuolated cells on the adaxial surface.
 (c) It helps in rolling of leaf to minimise water loss when it is flaccid.
 (d) All of the above
131. Which of the following statement is correct regarding simple permanent tissue?
 (a) The collenchyma occurs in layers below the epidermis in monocotyledonous plants.
 (b) Sclerenchyma cells are usually dead and without protoplasts.
 (c) Xylem parenchyma cells are living and thin walled and their cell walls are made up of lignin.
 (d) The companion cells are specialized sclerenchymatous cells
132. Which of the following statement is not correct about xylem?
 (a) It is a conducting tissue for water and minerals from roots to the stem and leaves.
 (b) It also provides mechanical strength to the plants parts.
 (c) It is composed of four different kinds of elements, namely, tracheids, companion cells, xylem fibres and xylem parenchyma.
 (d) Gymnosperms lack vessels in their xylem

133. Which of the following statements is correct?
 (a) Lenticels occur in most woody trees.
 (b) Sclerenchymatous cells are usually present in cortex.
 (c) The vascular tissue system is divided into three main zones- cortex, pericycle and pith.
 (d) The conjoint vascular bundles usually have the xylem located only on the outer side of the phloem
134. Which of the following pair of match is not correct?
 (a) Pith - Large and well developed in monocotyledonous root.
 (b) Root hairs - Helps in preventing water loss due to transpiration
 (c) Sieve tube elements - Its functions are controlled by the nucleus of companion cells.
 (d) Stomatal apparatus - Consists of stomatal aperture, guard cells and surrounding subsidiary cells
135. A plant tissue when stained showed the presence of hemicellulose and pectin in cells wall of its cells. The tissue is called
 (a) Collenchyma (b) Sclerenchyma
 (c) Xylem (d) Meristem
- SECTION - B**
136. Which of the following is not a lateral meristem?
 (a) Intercalary meristem
 (b) Intrafascicular meristem
 (c) Interfascicular meristem
 (d) Phellogen
137. Heartwood differs from sapwood in
 (a) Being susceptible to pests and pathogens
 (b) Presence of rays and fibres
 (c) Absence of vessels and parenchyma
 (d) Having dead and non-conducting elements
138. Regarding to wood find out the wrong statement
 (a) Vessels of spring wood having wider cavities
 (b) Vessels of autumn wood having wider cavities
 (c) Spring wood is lighter in colour
 (d) Autumn wood has a higher density
139. Select out the incorrect statement regarding to xylem
 (a) On the basis of origin xylem is primary and secondary
 (b) On the basis of development, sec xylem is differentiated in protoxylem & metaxylem
 (c) In stem protoxylem lies towards centre and metaxylem towards periphery
 (d) In root metaxylem lies towards centre & protoxylem towards periphery
140. Given below are characteristic of a structure present on stem:
 (a) Epidermal hair
 (b) Multicellular
 (c) Branched or unbranched
 (d) May be secretory
 Among the following which one is it:
 (a) Trichome (b) Scutellum
 (c) Calyptra (d) Trichophore
141. Large number of vascular bundle found in monocot stem each surrounded by:
 (a) Collenchymatous multilayered sheath
 (b) Parenchymatous single layered sheath
 (c) Sclerenchymatous bundle sheath
 (d) None of these
142. In winter, the cambium is less active and forms fewer xylary elements that have narrow vessels, and this wood is called:
 (a) Spring wood (b) Late wood
 (c) Early wood (d) All of the above
143. The parenchymatous cells which lie between the xylem and the phloem in dicot roots are called:
 (a) Passage cell
 (b) Pericycle
 (c) Casperian strips
 (d) Conjunctive tissue
144. Select the incorrect statement in the followings:
 (a) Open conjoint, collateral or bicollateral vascular bundles found in monocot stem
 (b) All the tissues on the innerside of the endodermis such as pericycle, vascular bundles and pith in dicot root constitute the stele
 (c) Polyarch vascular bundles found in monocot root
 (d) Phloem parenchyma is absent in monocot stem
145. Growth of the roots and stems in length with the help of apical meristem is called:
 (a) Primary growth
 (b) Secondary growth
 (c) Spongy growth
 (d) Parallel growth
146. The narrow layer of thin walled cells which separates the wood from phloem in dicotyledonous plant is called:
 (a) Endodermis
 (b) Pericycle
 (c) Vascular cambium
 (d) Cork cambium

147. Identify A, B, C, D and E in the following diagram:



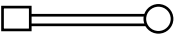



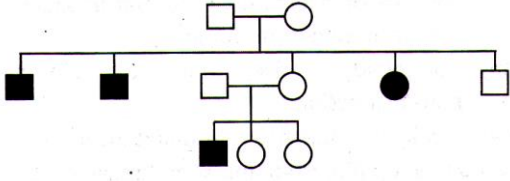
- (a) A – Intrafascicular cambium, B – Cortex, C – Primary xylem, D – Vascular cambium and E – Pith
 (b) A – Interfascicular cambium, B – Pith, C – Primary xylem, D – Cortex and E – Vascular cambium
 (c) A – Vascular cambium, B – Pith, C – Primary xylem, D – Interfascicular cambium and E – Cortex
 (d) A – Interfascicular cambium, B – Pith, C – Primary xylem, D – Vascular cambium and E – Cortex
148. The cork is a product of:
 (a) Xylem (b) Vascular cambium
 (c) Dermatogen (d) Phellogen
149. Phellem and phellogen respectively represents:
 (a) Secondary cortex and cork
 (b) Cork and secondary cortex
 (c) Cork cambium and cork
 (d) Cork and cork cambium
150. The wood is actually is a:
 (a) Secondary xylem
 (b) Secondary phloem
 (c) Primary xylem and secondary phloem
 (d) None is correct

ZOOLOGY

SECTION - A

151. In each pregnancy probability of a female child is:
 (a) 25 % (b) 50 % (c) 75 % (d) 100 %
152. A colourblind man (X^cY) has a colourblind sister (X^cX^c) and a normal brother (XY). What is genotype of father and mother :
 (a) X^cY, X^cX^c (b) X^cY, X^cX
 (c) XY, X^cX^c (d) XY, X^cX

153. A woman with two genes, one for haemophilia and one for colour blindness on one of its X-chromosomes, marries a normal man. The progeny will be :
 (a) All sons haemophilic and colour blind
 (b) 50% haemophilic and colour blind sons and 50% normal sons
 (c) All daughters haemophilic and colour blind
 (d) 50% haemophilic daughters and 50% colour blind daughters
154. Both husband and wife have normal vision though their father were colour blind and mother without any allele for colour blindness. What is the percentage of colour blind sons among all the progenies :
 (a) 0% (b) 15% (c) 25% (d) 50%
155. Sickle cell anaemia is caused due to substitution of:
 (a) Glutamic acid by valine at the sixth position
 (b) Valine by glutamic acid at the sixth position
 (c) Valine by glutamic acid at the 9th position
 (d) None of these
156. If a person is suffering from phenylketonuria then he is lack of :
 (a) An enzyme that converts the amino acid phenylalanine into tyrosine
 (b) An enzyme that converts the amino acid tyrosine into phenylalanine
 (c) An enzyme that converts the amino acid tryptophan into phenylalanine.
 (d) An enzyme that converts the amino acid valine into glutamic acid.
157. Due to nondisjunction of chromosomes during spermatogenesis some sperms carry both sex chromosomes ($22A + XY$) while others do not carry any sex chromosome ($22A + O$). If these sperms fertilize normal eggs ($22A + X$), what type of genetic disorders appear among the offspring :
 (a) Klinefelter's syndrome and Turner's syndrome
 (b) Down's syndrome and Klinefelter's syndrome
 (c) Down's syndrome and Turner's syndrome
 (d) Down's syndrome and Cri-du-chat syndrome
158. Chromosomal composition of klinefelters syndrome :
 (a) $44 + XXX$ (b) $44 + XXY$
 (c) $47 + XXY$ (d) $45 + XO$
159. Female is heterogamety in :
 (a) Insects (b) Man
 (c) Drosophila (d) Birds

160. Which one of the following is not a Mendelian disorder:
 (a) Haemophilia
 (b) Sickle-cell anaemia
 (c) Phenylketonuria
 (d) Down's syndrome
161. Which of the following is autosomal dominant trait:
 (a) Haemophilia
 (b) Cystic fibrosis
 (c) Sickle cell anaemia
 (d) Myotonic dystrophy
162. Albinism and phenylketonuria are disorders due to:
 (a) Recessive autosomal genes
 (b) Dominant autosomal genes
 (c) Dominant sex-linked genes
 (d) Recessive sex-linked genes
163. A normal woman whose father was haemophilic (X^hY) marries a normal man (XY). The offspring shall be :
 (a) All normal
 (b) All sons haemophilic
 (c) All daughter haemophilic
 (d) Some sons are haemophilic
164. How many of the given example are of mendelian disorder
 Cystic fibrosis, Haemophilia, Thalassaemia, Phenylketonuria, Cryduchat, Turner syndrome
 (a) 3 (b) 4 (c) 5 (d) 6
165. In phenylketonuria mental retardation takes place due to accumulation of
 (a) Tyrosine
 (b) Phenylalanine
 (c) Phenylpyruvic acid
 (d) Dopamine
166. Match the columns
- | Columns-I | Columns-II |
|---------------------------|--------------------------------------|
| a. Down's syndrome | p. An additional sex chromosome |
| b. Cri-du-chat syndrome | q. Loss of a part of chromosome 5 |
| c. Klinefelter's syndrome | r. Absence of sex chromosome |
| d. Turner's syndrome | s. Presence of an extra chromosome |
| | t. Presence of two extra chromosomes |
- (a) a-s, b-q, c-p, d-r
 (b) a-t, b-s, c-p, d-q
 (c) a-s, b-q, c-q, d-r
 (d) a-s, b-q, c-r, d-p
167. Which one of the following statement is incorrect:
 (I) Mendelian disorders are mainly determined by alteration or mutation in the single gene
 (II) Sickle-cell anaemia is an autosome linked recessive trait
 (III) Failure of segregation of chromatids during cell division cycle results in the gain or loss of a chromosome(s), called aneuploidy
 (IV) Turner's syndrome, Klinefelter's syndrome are common examples of Mendelian disorders.
 (a) I and IV (b) II and IV
 (c) Only IV (d) II, III and IV
168. In ZW - ZZ type of sex determination in birds:
 (a) Males are heterogametic
 (b) Females are heterogametic
 (c) Females are homogametic
 (d) Both males and females are homogametic
169. Albinism is known to be due to an autosomal recessive mutation. The first child of a couple with normal skin pigmentation was an albino. What is the probability of their second child will also be an albino?
 (a) 50% (b) 25% (c) 75% (d) 100%
170. 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)
171. Study the pedigree chart given below.
- 
- What does it show:
 (a) The pedigree chart is wrong as this is not possible
 (b) Inheritance of recessive sex - linked disease like haemophilia
 (c) Inheritance of a condition like phenylketonuria as an autosomal recessive trait

(d) Inheritance of a sex - linked inborn error of metabolism like phenylketonuria

172. Match the columns:

	Column - I		Column - II
A.	Mongolism	(i)	XYY
B.	Jacob syndrome	(ii)	21 - trisomy
C.	Patau's syndrome	(iii)	18 - trisomy
D.	Edward's syndrome	(iv)	13 - trisomy

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

173. A lady with Down's syndrome marries a normal man. What are the chance of having affected babies?

- (a) 50% (b) 75% (c) 50% (d) 80%

174. Identify the first and sixth amino acid of β -globin chain of haemoglobin of a person suffering from sickle cell anaemia.

- (a) Glutamic acid, valine
 (b) Glutamic acid, glutamic acid
 (c) Valine, glutamic acid
 (d) Valine, valine

175. What is true of an individual suffering from Down's syndrome?

- (a) Short statured small round head
 (b) Furrowed tongue, palm crease
 (c) Physical, psychomotor and mental development is retarded
 (d) All of the above

176. Condition of a karyotype $2n \pm 1$ and $2n \pm 2$ are called:

- (a) Aneuploidy (b) Polyploidy
 (c) Allopolyploidy (d) Monosomy

177. In a certain taxon of insects some have 17 chromosomes and the others have 18 chromosomes. The 17 and 18 chromosomes bearing organisms are:

- (a) Males and females, respectively
 (b) Females and males, respectively
 (c) All males
 (d) All females

178. Male are more often affected by sex - linked traits than females because:

- (a) X - chromosomes in males generally have more mutations than X - chromosomes in females
 (b) Males are hemizygous

- (c) Mutation on the Y chromosomes often worsens the effects of X - linked mutation
 (d) Male hormones like testosterone often alter the effects of mutations on X - chromosome

179. Haploid number is 10. What shall be the tetrasomic number?

- (a) 22 (b) 18 (c) 20 (d) 19

180. Read the following statements.

- (a) In haplo-diploid sex-determination system, the males do not have father and thus cannot have sons, but have a grandfather and can have grandsons
 (b) In honey bee, workers are developed by the unfertilized eggs by means of parthenogenesis
 (c) In human skin colour, the effect of each allele is additive
 (d) In XO type of sex-determination, male have half number of chromosome than the female

181. Match the columns I and II, and Choose the correct combination from the options given.

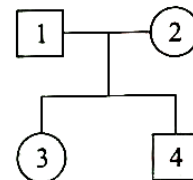
	Column I		Column II
(A)	XO type	1.	Male heterogamety
(B)	XY type	2.	Female heterogamety
(C)	ZW type		

	A	B	C
(a)	1	2	2
(b)	2	1	1
(c)	1	1	2
(d)	2	2	1

182. In sickle cell anaemia, the sequence of amino acids from first to seventh position of β -chain of haemoglobin S (HbS) is

- (a) His, Leu, Thr, Pro, Glu, Val, Val
 (b) Val, His, Leu, Thr, Pro, Glu, Glu
 (c) Glu, His, Leu, Pro, Val, Glu, Glu
 (d) Val, His, Leu, Thr, Pro, Val, Glu

183. In this pedigree, which of the progeny is younger ?



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

184. The symbol of empty circles used in pedigree analysis represents

- (a) Normal females (b) Normal males
 (c) Affected females (d) Affected males

185. Which of the following genotype will show the diseased condition in sickle cell anaemia ?
- (a) $Hb^A Hb^A$ (b) $Hb^A Hb^S$
 (c) $Hb^S Hb^S$ (d) Both B and C

SECTION - B

186. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is :
- (a) Autosomal dominant
 (b) Autosomal recessive
 (c) Sex-linked dominant
 (d) Sex-linked recessive
187. An unaffected carrier female of haemophilia transmits, disease of haemophilia.
- (a) To some of the female progeny
 (b) To some of the male progeny
 (c) To some of the male and female progeny
 (d) None and never to any of the progeny
188. Phenotypically females having rudimentary ovaries, under developed breast, short stature, webbing neck, often subnormal intelligence suggest
- (a) Down's syndrome
 (b) Turner's syndrome
 (c) Edward's syndrome
 (d) Klinefelter's syndrome
189. Mutation arise due to change in a single base pair of DNA is known as :
- (a) Gross mutation
 (b) Chromosomal mutation
 (c) Point mutation
 (d) Abnormal mutation
190. Frame-shift mutation is due to :
- (a) Deletions and insertions of base pairs of DNA
 (b) Deletions and substitution of base pairs of DNA
 (c) Substitution and insertions of base pairs of DNA
 (d) Any of the above
191. Trisomy of 21 st chromosome results in :
- (a) Turner's syndrome
 (b) Klinefelter's syndrome
 (c) Sickle cell anaemia
 (d) Down's syndrome

192. 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

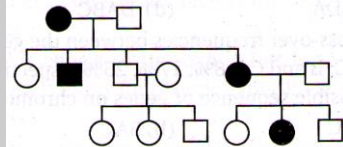
- (a) A = (iii), B = (ii), C = (iv), D = (i)
 (b) A = (iii), B = (ii), C = (i), D = (iv)
 (c) A = (i), B = (ii), C = (iv), D = (iii)
 (d) A = (ii), B = (iii), C = (i), D = (iv)

193. Match the columns:

	Column - I		Column - II
A.	Trisomy	(i)	$(2n - 2)$
B.	Tetrasomy	(ii)	$(2n + 1)$
C.	Double monosomy	(iii)	$(2n + 2)$
D.	Nullisomy	(iv)	$(2n - 1 - 1)$

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

194. 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)

195. In which of the aneuploids of same species there will be same number of chromosomes?
- (a) Double trisomic and tetrasomic
 (b) Trisomic and Nullisomic
 (c) Monosomic and retrasomic
 (d) Double trisomic and monosomic
196. Ishihara charts are used by ophthalmologists for detecting
- (a) Eye infection (b) Night blindness
 (c) Colour blindness (d) Finger prints

197. **Assertion :** The honey bee queen copulates only ones in her life time.
Reason : The honey bee queen can lay fertilized as well as unfertilized eggs.
 (a) If both assertion and reason are true and the reason is a correct explanation of the assertion.
 (b) If both assertion and reason are true but reason is not a correct explanation of the assertion.
 (c) If the assertion is true but reason is false.
 (d) If both the assertion and reason are false.
198. **Assertion:** In humans, the gamete contributed by the male determines whether the child produced will be male or female.
Reason: Sex in humans is a polygenic trait depending upon cumulative effect of some genes on X-chromosomes and some on Y-chromosomes.
 (a) If both assertion and reason are true and the reason is a correct explanation of the assertion.
 (b) If both assertion and reason are true but reason is not a correct explanation of the assertion.
 (c) If the assertion is true but reason is false.
 (d) If both the assertion and reason are false.
199. **Assertion:** XX-XY type of sex determination mechanism is an example of male heterogamety.
Reason: In birds, male heterogamety is seen as males produce two different types of gametes.
 (a) If both assertion and reason are true and the reason is a correct explanation of the assertion.
 (b) If both assertion and reason are true but reason is not a correct explanation of the assertion.
 (c) If the assertion is true but reason is false.
 (d) If both the assertion and reason are false.
200. Heterozygous ($Hb^A Hb^S$) individuals have how much percent of probability of transmission of the mutant gene to progeny ?
 (a) 25% (b) 50% (c) 75% (d) 100%

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							