Important Instructions:

1. The Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars on side-1 and side-2 carefully with blue/black ball point pen only.

2. The test is of 3 hours duration and Test Booklet contains 180 questions. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.

3. Use Blue/Black Ball Point Pen only for writing particulars on this page/marking responses.

4. Rough work is to be done on the space provided for this purpose in the Test Booklet only.

5. On completion of the test, the candidate must hand over the Answer Sheet to the invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.

6. The CODE for this Booklet is H3. Make sure that the CODE printed on Side-2 of the Answer Sheet is the same as that on this Test Booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.

7. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.

8. Use of white fluid for correction is NOT permissible on the Answer Sheet.

In case of any ambiguity in translation of any question, English version shall be treated as final.
1. The color code of a resistance is given below:

![Resistance Color Code]

The values of resistance and tolerance, respectively, are:

<table>
<thead>
<tr>
<th>Option</th>
<th>Resistance</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>470 Ω</td>
<td>5%</td>
</tr>
<tr>
<td>(2)</td>
<td>470 kΩ</td>
<td>5%</td>
</tr>
<tr>
<td>(3)</td>
<td>47 kΩ</td>
<td>10%</td>
</tr>
<tr>
<td>(4)</td>
<td>4.7 kΩ</td>
<td>5%</td>
</tr>
</tbody>
</table>

2. Find the torque about the origin when a force of $3 \text{j N}$ acts on a particle whose position vector is $2 \text{k m}$.

<table>
<thead>
<tr>
<th>Option</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>$6 \text{k N m}$</td>
</tr>
<tr>
<td>(2)</td>
<td>$6 \text{i N m}$</td>
</tr>
<tr>
<td>(3)</td>
<td>$6 \text{j N m}$</td>
</tr>
<tr>
<td>(4)</td>
<td>$-6 \text{i N m}$</td>
</tr>
</tbody>
</table>

3. A cylinder contains hydrogen gas at pressure of 249 kPa and temperature 27°C.

Its density is: ($R = 8.3 \text{ J mol}^{-1} \text{K}^{-1}$)

<table>
<thead>
<tr>
<th>Option</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>0.02 kg/m³</td>
</tr>
<tr>
<td>(2)</td>
<td>0.5 kg/m³</td>
</tr>
<tr>
<td>(3)</td>
<td>0.2 kg/m³</td>
</tr>
<tr>
<td>(4)</td>
<td>0.1 kg/m³</td>
</tr>
</tbody>
</table>

4. Two cylinders A and B of equal capacity are connected to each other via a stop cock. A contains an ideal gas at standard temperature and pressure. B is completely evacuated. The entire system is thermally insulated. The stop cock is suddenly opened. The process is:

<table>
<thead>
<tr>
<th>Option</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>isobaric</td>
</tr>
<tr>
<td>(2)</td>
<td>isothermal</td>
</tr>
<tr>
<td>(3)</td>
<td>adiabatic</td>
</tr>
<tr>
<td>(4)</td>
<td>isochoric</td>
</tr>
</tbody>
</table>
5. Two particles of mass 5 kg and 10 kg respectively are attached to the two ends of a rigid rod of length 1 m with negligible mass.

The centre of mass of the system from the 5 kg particle is nearly at a distance of:

(1) 80 cm
(2) 33 cm
(3) 50 cm
(4) 67 cm

6. A ray is incident at an angle of incidence $i$ on one surface of a small angle prism (with angle of prism $A$) and emerges normally from the opposite surface. If the refractive index of the material of the prism is $\mu$, then the angle of incidence is nearly equal to:

(1) $\frac{\mu A}{2}$
(2) $\frac{A}{2\mu}$
(3) $\frac{2A}{\mu}$
(4) $\mu A$

7. A body weighs 72 N on the surface of the earth. What is the gravitational force on it, at a height equal to half the radius of the earth?

(1) 24 N
(2) 48 N
(3) 32 N
(4) 30 N

8. An iron rod of susceptibility 599 is subjected to a magnetising field of 1200 A m$^{-1}$. The permeability of the material of the rod is:

(1) $2.4\pi \times 10^{-7}$ T m A$^{-1}$
(2) $2.4\pi \times 10^{-4}$ T m A$^{-1}$
(3) $8.0 \times 10^{-5}$ T m A$^{-1}$
(4) $2.4\pi \times 10^{-5}$ T m A$^{-1}$

9. For transistor action, which of the following statements is correct?

(1) The base region must be very thin and lightly doped.
(2) Base, emitter and collector regions should have same doping concentrations.
(3) Base, emitter and collector regions should have same size.
(4) Both emitter junction as well as the collector junction are forward biased.
10. Light with an average flux of 20 W/cm$^2$ falls on a non-reflecting surface at normal incidence having surface area 20 cm$^2$. The energy received by the surface during time span of 1 minute is:

(1) $48 \times 10^3$ J
(2) $10 \times 10^3$ J
(3) $12 \times 10^3$ J
(4) $24 \times 10^3$ J

11. A short electric dipole has a dipole moment of $16 \times 10^{-9}$ C m. The electric potential due to the dipole at a point at a distance of 0.6 m from the centre of the dipole, situated on a line making an angle of 60° with the dipole axis is:

\[
\left( \frac{1}{4\pi \varepsilon_0} = 9 \times 10^9 \text{ N m}^2/\text{C}^2 \right)
\]

(1) zero
(2) 50 V
(3) 200 V
(4) 400 V

12. A ball is thrown vertically downward with a velocity of 20 m/s from the top of a tower. It hits the ground after some time with a velocity of 80 m/s. The height of the tower is:

\[
g = 10 \text{ m/s}^2
\]

(1) 300 m
(2) 360 m
(3) 340 m
(4) 320 m

13. A resistance wire connected in the left gap of a metre bridge balances a 10 $\Omega$ resistance in the right gap at a point which divides the bridge wire in the ratio 3 : 2. If the length of the resistance wire is 1.5 m, then the length of 1 $\Omega$ of the resistance wire is:

(1) $1.5 \times 10^{-2}$ m
(2) $1.0 \times 10^{-2}$ m
(3) $1.0 \times 10^{-1}$ m
(4) $1.5 \times 10^{-1}$ m
14. When a uranium isotope $^{235}_{92}$U is bombarded with a neutron, it generates $^{89}_{36}$Kr, three neutrons and:

(1) $^{103}_{36}$Kr
(2) $^{144}_{56}$Ba
(3) $^{91}_{40}$Zr
(4) $^{101}_{36}$Kr

15. A long solenoid of 50 cm length having 100 turns carries a current of 2.5 A. The magnetic field at the centre of the solenoid is:

\[ \mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1} \]

(1) $3.14 \times 10^{-5}$ T
(2) $6.28 \times 10^{-4}$ T
(3) $3.14 \times 10^{-4}$ T
(4) $6.28 \times 10^{-5}$ T

16. The average thermal energy for a mono-atomic gas is: ($k_B$ is Boltzmann constant and $T$, absolute temperature)

(1) $\frac{7}{2} k_B T$
(2) $\frac{1}{2} k_B T$
(3) $\frac{3}{2} k_B T$
(4) $\frac{5}{2} k_B T$

17. A capillary tube of radius $r$ is immersed in water and water rises in it to a height $h$. The mass of the water in the capillary is 5 g. Another capillary tube of radius $2r$ is immersed in water. The mass of water that will rise in this tube is:

(1) 20.0 g
(2) 2.5 g
(3) 5.0 g
(4) 10.0 g
18. The ratio of contributions made by the electric field and magnetic field components to the intensity of an electromagnetic wave is: \((c = \text{speed of electromagnetic waves})\)

(1) \(1 : c^2\)
(2) \(c : 1\)
(3) \(1 : 1\)
(4) \(1 : c\)

19. Assume that light of wavelength 600 nm is coming from a star. The limit of resolution of telescope whose objective has a diameter of 2 m is:

(1) \(6.00 \times 10^{-7}\) rad
(2) \(3.66 \times 10^{-7}\) rad
(3) \(1.83 \times 10^{-7}\) rad
(4) \(7.32 \times 10^{-7}\) rad

20. A wire of length L, area of cross section A is hanging from a fixed support. The length of the wire changes to \(L_1\) when mass M is suspended from its free end. The expression for Young’s modulus is:

(1) \(\frac{MgL}{A(L_1 - L)}\)
(2) \(\frac{Mg}{AL}\)
(3) \(\frac{Mg(L_1 - L)}{AL}\)
(4) \(\frac{MgL}{AL_1}\)

21. In a certain region of space with volume 0.2 m\(^3\), the electric potential is found to be 5 V throughout. The magnitude of electric field in this region is:

(1) 5 N/C
(2) zero
(3) 0.5 N/C
(4) 1 N/C
23. The mean free path for a gas, with molecular diameter $d$ and number density $n$ can be expressed as:

\[
\frac{1}{\sqrt{2} \pi n d^2}
\]

24. An electron is accelerated from rest through a potential difference of $V$ volt. If the de Broglie wavelength of the electron is $1.227 \times 10^{-2}$ nm, the potential difference is:

(1) $10^4$ V
(2) 10 V
(3) $10^2$ V
(4) $10^3$ V

25. In a guitar, two strings A and B made of same material are slightly out of tune and produce beats of frequency 6 Hz. When tension in B is slightly decreased, the beat frequency increases to 7 Hz. If the frequency of A is 530 Hz, the original frequency of B will be:

(1) 537 Hz
(2) 523 Hz
(3) 524 Hz
(4) 536 Hz

26. A 40 $\mu$F capacitor is connected to a 200 V, 50 Hz ac supply. The rms value of the current in the circuit is, nearly:

(1) 25.1 A
(2) 1.7 A
(3) 2.05 A
(4) 2.5 A

27. The increase in the width of the depletion region in a p-n junction diode is due to:

(1) increase in forward current
(2) forward bias only
(3) reverse bias only
(4) both forward bias and reverse bias
28. The Brewster's angle \( \theta_b \) for an interface should be:

(1) \( \theta_b = 90^\circ \)
(2) \( 0^\circ < \theta_b < 30^\circ \)
(3) \( 30^\circ < \theta_b < 45^\circ \)
(4) \( 45^\circ < \theta_b < 90^\circ \)

29. The phase difference between displacement and acceleration of a particle in a simple harmonic motion is:

(1) zero
(2) \( \pi \) rad
(3) \( \frac{3\pi}{2} \) rad
(4) \( \frac{\pi}{2} \) rad

30. A spherical conductor of radius 10 cm has a charge of \( 3.2 \times 10^{-7} \) C distributed uniformly. What is the magnitude of electric field at a point 15 cm from the centre of the sphere?

\[
\frac{1}{4\pi\varepsilon_0} = 9 \times 10^9 \text{ N m}^2/\text{C}^2
\]

(1) \( 1.28 \times 10^7 \) N/C
(2) \( 1.28 \times 10^4 \) N/C
(3) \( 1.28 \times 10^5 \) N/C
(4) \( 1.28 \times 10^6 \) N/C

31. The capacitance of a parallel plate capacitor with air as medium is 6 \( \mu \)F. With the introduction of a dielectric medium, the capacitance becomes 30 \( \mu \)F. The permittivity of the medium is:

\[
\varepsilon_0 = 8.85 \times 10^{-12} \text{ C}^2/\text{N m}^{-1}
\]

(1) \( 5.00 \) C^2/N m^{-1}
(2) \( 0.44 \times 10^{-13} \) C^2/N m^{-1}
(3) \( 1.77 \times 10^{-12} \) C^2/N m^{-1}
(4) \( 0.44 \times 10^{-10} \) C^2/N m^{-1}

32. Taking into account of the significant figures, what is the value of 9.99 m – 0.0099 m?

(1) 9.9 m
(2) 9.981 m
(3) 9.98 m
(4) 9.980 m
33. A series LCR circuit is connected to an ac voltage source. When L is removed from the circuit, the phase difference between current and voltage is $\frac{\pi}{3}$. If instead C is removed from the circuit, the phase difference is again $\frac{\pi}{3}$ between current and voltage. The power factor of the circuit is:

(1) $-1.0$
(2) zero
(3) 0.5
(4) 1.0

34. Dimensions of stress are:

(1) $[ML^{-1}T^{-2}]$
(2) $[MLT^{-2}]$
(3) $[ML^2T^{-2}]$
(4) $[ML^0T^{-2}]$

35. Light of frequency 1.5 times the threshold frequency is incident on a photosensitive material. What will be the photoelectric current if the frequency is halved and intensity is doubled?

(1) zero
(2) doubled
(3) four times
(4) one-fourth

36. The solids which have the negative temperature coefficient of resistance are:

(1) insulators and semiconductors
(2) metals
(3) insulators only
(4) semiconductors only

37. A charged particle having drift velocity of $7.5 \times 10^{-4}$ m s$^{-1}$ in an electric field of $3 \times 10^{-10}$ V m$^{-1}$, has a mobility in m$^2$ V$^{-1}$ s$^{-1}$ of:

(1) $2.25 \times 10^{-15}$
(2) $2.25 \times 10^{15}$
(3) $2.5 \times 10^6$
(4) $2.5 \times 10^{-6}$
38. Which of the following graph represents the variation of resistivity ($\rho$) with temperature ($T$) for copper?

(1) 

(2) 

(3) 

(4) 

39. Two bodies of mass 4 kg and 6 kg are tied to the ends of a massless string. The string passes over a pulley which is frictionless (see figure). The acceleration of the system in terms of acceleration due to gravity ($g$) is:

(1) $\frac{g}{10}$
(2) $g$
(3) $\frac{g}{2}$
(4) $\frac{g}{5}$

40. A screw gauge has least count of 0.01 mm and there are 50 divisions in its circular scale. The pitch of the screw gauge is:

(1) 1.0 mm
(2) 0.01 mm
(3) 0.25 mm
(4) 0.5 mm
41. In Young’s double slit experiment, if the separation between coherent sources is halved and the distance of the screen from the coherent sources is doubled, then the fringe width becomes:
(1) one-fourth
(2) double
(3) half
(4) four times

42. For the logic circuit shown, the truth table is:
(1) A B Y
0 0 1
0 1 0
1 0 0
1 1 0
(2) A B Y
0 0 0
0 1 0
1 0 0
1 1 1
(3) A B Y
0 0 0
0 1 1
1 0 1
1 1 1
(4) A B Y
0 0 1
0 1 1
1 0 1
1 1 0

43. The energy equivalent of 0.5 g of a substance is:
(1) 0.5 × 10^{13} J
(2) 4.5 × 10^{16} J
(3) 4.5 × 10^{13} J
(4) 1.5 × 10^{13} J

44. For which one of the following, Bohr model is not valid?
(1) Singly ionised neon atom (Ne⁺)
(2) Hydrogen atom
(3) Singly ionised helium atom (He⁺)
(4) Deuteron atom
45. The quantities of heat required to raise the temperature of two solid copper spheres of radii \( r_1 \) and \( r_2 \) (\( r_1 = 1.5 r_2 \)) through 1 K are in the ratio:

- (1) \( \frac{5}{3} \)
- (2) \( \frac{27}{8} \)
- (3) \( \frac{9}{4} \)
- (4) \( \frac{3}{2} \)

46. The transverse section of a plant shows following anatomical features:

- (a) Large number of scattered vascular bundles surrounded by bundle sheath.
- (b) Large conspicuous parenchymatous ground tissue.
- (c) Vascular bundles conjoint and closed.
- (d) Phloem parenchyma absent.

Identify the category of plant and its part:

- (1) Dicotyledonous root
- (2) Monocotyledonous stem
- (3) Monocotyledonous root
- (4) Dicotyledonous stem

47. Which of the following would help in prevention of diuresis?

- (1) Decrease in secretion of renin by JG cells
- (2) More water reabsorption due to undersecretion of ADH
- (3) Reabsorption of \( Na^+ \) and water from renal tubules due to aldosterone
- (4) Atrial natriuretic factor causes vasoconstriction

48. Which of the following statements is not correct?

- (1) Genetically engineered insulin is produced in E-Coli.
- (2) In man insulin is synthesised as a proinsulin.
- (3) The proinsulin has an extra peptide called C-peptide.
- (4) The functional insulin has A and B chains linked together by hydrogen bonds.
49. Embryological support for evolution was disapproved by:
   (1) Oparin
   (2) Karl Ernst von Baer
   (3) Alfred Wallace
   (4) Charles Darwin

50. Goblet cells of alimentary canal are modified from:
   (1) Compound epithelial cells
   (2) Squamous epithelial cells
   (3) Columnar epithelial cells
   (4) Chondrocytes

51. The QRS complex in a standard ECG represents:
   (1) Repolarisation of ventricles
   (2) Repolarisation of auricles
   (3) Depolarisation of auricles
   (4) Depolarisation of ventricles

52. In light reaction, plastoquinone facilitates the transfer of electrons from:
   (1) PS-I to ATP synthase
   (2) PS-II to Cytb$_6$ complex
   (3) Cytb$_6$ complex to PS-I
   (4) PS-I to NADP$^+$

53. The product(s) of reaction catalyzed by nitrogenase in root nodules of leguminous plants is/are:
   (1) Ammonia and hydrogen
   (2) Ammonia alone
   (3) Nitrate alone
   (4) Ammonia and oxygen

54. Match the following with respect to meiosis:
   (a) Zygotene (i) Terminalization
   (b) Pachytene (ii) Chiasmata
   (c) Diplotene (iii) Crossing over
   (d) Diakinesis (iv) Synapsis

   Select the correct option from the following:
   (a) (b) (c) (d)
   (1) (i) (iv) (iii) (i)
   (2) (iii) (iv) (i) (ii)
   (3) (iv) (iii) (i) (i)
   (4) (i) (ii) (iv) (iii)
55. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>संबंध - I</th>
<th>संबंध - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) क्लोम छिद्रों के 6 - 15 युग्म (i) ट्रायगोन</td>
<td>(a) 6 - 15 pairs of gill slits (i) Trygon</td>
</tr>
<tr>
<td>(b) हेटरोस्कल पुष्च पक्ष (ii) साइक्लोस्टोमस</td>
<td>(b) Heterocercal (ii) Cyclostomes caudal fin</td>
</tr>
<tr>
<td>(c) बायु कोष (iii) काउंड्रीक्षीज</td>
<td>(c) Air Bladder (iii) Chondrichthyes</td>
</tr>
<tr>
<td>(d) विष दंश (iv) ऑस्टिक्षीज</td>
<td>(d) Poison sting (iv) Osteichthyes</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)

(1) (i) (iv) (iii) (ii)
(2) (ii) (iii) (iv) (i)
(3) (iii) (iv) (i) (ii)
(4) (iv) (ii) (iii) (i)

56. Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells?

(1) Polysomes
(2) Endoplasmic reticulum
(3) Peroxisomes
(4) Golgi bodies

57. Match the organism with its use in biotechnology.

(a) Bacillus thuringiensis (i) Cloning vector
(b) Thermus aquaticus (ii) Construction of first rDNA molecule
(c) Agrobacterium tumefaciens (iii) DNA polymerase
(d) Salmonella typhimurium (iv) Cry proteins

Select the correct option from the following:

(a) (b) (c) (d)

(1) (iii) (iv) (i) (ii)
(2) (ii) (iii) (iv) (i)
(3) (iv) (iii) (i) (ii)
(4) (iii) (ii) (iv) (i)

58. Experimental verification of the chromosomal theory of inheritance was done by:

(1) Morgan
(2) Mendel
(3) Sutton
(4) Boveri
59. Match the following:
(a) Inhibitor of catalytic activity (i) Ricin
(b) Possess peptide bonds (ii) Malonate
(c) Cell wall material in fungi (iii) Chitin
(d) Secondary metabolite (iv) Collagen
Choose the correct option from the following:
(a) (b) (c) (d)
(1) (ii) (iii) (i) (iv)
(2) (ii) (iv) (iii) (i)
(3) (iii) (i) (iv) (ii)
(4) (iii) (iv) (i) (ii)

60. Bilaterally symmetrical and acoelomate animals are exemplified by:
(1) Annelida
(2) Ctenophora
(3) Platyhelminthes
(4) Aschelminthes

61. Floridean starch has structure similar to:
(1) Laminarin and cellulose
(2) Starch and cellulose
(3) Amylopectin and glycogen
(4) Mannitol and algin

62. Identify the correct statement with regard to G₁ phase (Gap 1) of interphase.
(1) Nuclear Division takes place.
(2) DNA synthesis or replication takes place.
(3) Reorganisation of all cell components takes place.
(4) Cell is metabolically active, grows but does not replicate its DNA.

63. If the head of cockroach is removed, it may live for few days because:
(1) the head holds a 1/3rd of a nervous system while the rest is situated along the dorsal part of its body.
(2) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.
(3) the cockroach does not have nervous system.
(4) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.
64. The enzyme enterokinase helps in conversion of:
   (1) pepsinogen into pepsin
   (2) protein into polypeptides
   (3) trypsinogen into trypsin
   (4) caseinogen into casein

65. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organ of Corti</td>
<td>(i) Connects middle ear and pharynx</td>
</tr>
<tr>
<td>Cochlea</td>
<td>(ii) Coiled part of the labyrinth</td>
</tr>
<tr>
<td>Eustachian tube</td>
<td>(iii) Attached to the oval window</td>
</tr>
<tr>
<td>Stapes</td>
<td>(iv) Located on the basilar membrane</td>
</tr>
</tbody>
</table>

66. Identify the wrong statement with reference to transport of oxygen.

(1) Low pCO₂ in alveoli favours the formation of oxyhaemoglobin.
(2) Binding of oxygen with haemoglobin is mainly related to partial pressure of O₂.
(3) Partial pressure of CO₂ can interfere with O₂ binding with haemoglobin.
(4) Higher H⁺ conc. in alveoli favours the formation of oxyhaemoglobin.

67. In water hyacinth and water lily, pollination takes place by:

(1) insects and water
(2) insects or wind
(3) water currents only
(4) wind and water

68. Bt cotton variety that was developed by the introduction of toxin gene of *Bacillus thuringiensis* (Bt) is resistant to:

(1) Insect predators
(2) Insect pests
(3) Fungal diseases
(4) Plant nematodes
69. Select the correct statement.

(1) Insulin is associated with hyperglycemia.
(2) Glucocorticoids stimulate gluconeogenesis.
(3) Glucagon is associated with hypoglycemia.
(4) Insulin acts on pancreatic cells and adipocytes.

70. Identify the basic amino acid from the following.

(1) Valine
(2) Tyrosine
(3) Glutamic Acid
(4) Lysine

71. Flippers of Penguins and Dolphins are examples of:

(1) Natural selection
(2) Adaptive radiation
(3) Convergent evolution
(4) Industrial melanism

72. From his experiments, S.L. Miller produced amino acids by mixing the following in a closed flask:

(1) CH₃, H₂, NH₃ and water vapor at 600°C
(2) CH₄, H₂, NH₃ and water vapor at 800°C
(3) CH₃, H₂, NH₄ and water vapor at 800°C
(4) CH₄, H₂, NH₃ and water vapor at 600°C

73. The specific palindromic sequence which is recognized by EcoRI is:

(1) 5' - GGATCC - 3'
(2) 5' - GAATTC - 3'
(3) 5' - GGAACC - 3'
(4) 5' - CTTAAG - 3'

74. Secondary metabolites such as nicotine, strychnine and caffeine are produced by plants for their:

(1) Effect on reproduction
(2) Nutritive value
(3) Growth response
(4) Defence action
75. Presence of which of the following conditions in urine are indicative of Diabetes Mellitus?
(1) Renal calculi and Hyperglycaemia
(2) Uremia and Ketonuria
(3) Uremia and Renal Calculi
(4) Ketonuria and Glycosuria

76. Which of the following statements are true for the phylum-Chordata?
(a) In Urochordata notochord extends from head to tail and it is present throughout their life.
(b) In Vertebrata notochord is present during the embryonic period only.
(c) Central nervous system is dorsal and hollow.
(d) Chordata is divided into 3 subphyla: Hemichordata, Tunicata, and Cephalochordata.
(1) (b) and (c)
(2) (d) and (c)
(3) (c) and (a)
(4) (a) and (b)

77. Cuboidal epithelium with brush border of microvilli is found in:
(1) eustachian tube
(2) lining of intestine
(3) ducts of salivary glands
(4) proximal convoluted tubule of nephron

78. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Clostridium</td>
<td>(i) Cyclosporin-A</td>
</tr>
<tr>
<td>(b) Trichoderma</td>
<td>(ii) Butyric Acid</td>
</tr>
<tr>
<td>(c) Monascus</td>
<td>(iii) Citric Acid</td>
</tr>
<tr>
<td>(d) Aspergillus</td>
<td>(iv) Blood cholesterol lowering agent</td>
</tr>
</tbody>
</table>

(a) (iv) (iii) (ii) (i)
(b) (iii) (iv) (ii) (i)
(c) (i) (iv) (iii) (ii)
(d) (i) (ii) (iv) (iii)
79. वियराडों के विषय में, निम्नलिखित में से कौन सा कथन सही है?
(1) उनमें प्रोटीन आवरण के बिना स्वतंत्र डी.एन.ए. होता है।
(2) उनमें एन.ए. हेक्सानोएड के साथ प्रोटीन आवरण होता है।
(3) उनमें प्रोटीन आवरण के बिना स्वतंत्र एन.ए. होता है।
(4) उनमें प्रोटीन आवरण के साथ डी.एन.ए. होता है।

80. बीजाणु का पिंड, बीजाणु चुंब से कहाँ पर संलयित होता है?
(1) निभाया
(2) नाफिका
(3) बीजाणुद्दार
(4) बीजाणुकाय

81. प्रकाश्वरण में RuBisCo एंजाइम की ऑक्सीजनीकरण चक्र के संदर्भ में किसका नियंत्रण होता है?
(1) 4-C यौगिक का 1 अणु और 2-C यौगिक का 1 अणु
(2) 3-C यौगिक के 2 अणु
(3) 3-C यौगिक का 1 अणु
(4) 6-C यौगिक का 1 अणु

82. निम्न संबंधों का मिलान कर ज्ञात कितना का यह करना?

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
<th>स्तंभ - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) इंसोफिल</td>
<td>(i) प्रतिक्षा प्रतिक्रिया</td>
</tr>
<tr>
<td>(b) वेसोफिल</td>
<td>(ii) भक्षण करना</td>
</tr>
<tr>
<td>(c) न्युरोफिल</td>
<td>(iii) हिस्टामिनेज, विनाशकारी एंजाइमों का मौध्य</td>
</tr>
<tr>
<td>(d) लिफ्सोफाइट</td>
<td>(iv) कण निम्नमें हिस्टामिन होते हैं का मौध्य करना</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)
(1) (ii) (i) (iii) (iv)
(2) (iii) (iv) (ii) (i)
(3) (iv) (i) (ii) (iii)
(4) (i) (ii) (iv) (iii)

83. निम्न के कौन ग्राफो पट्टक से अंडा का मौध्य (अंडोफल्स) करेगा?
(1) FSH की निम्न साइदिता
(2) एस्ट्रोजेन की उच्च साइदिता
(3) प्रोग्रेस्टोर की उच्च साइदिता
(4) LH की निम्न साइदिता

83. निम्न के कौन ग्राफो पट्टक से अंडा का मौध्य (अंडोफल्स) करेगा?

(1) निम्न साइदिता
(2) उच्च साइदिता
(3) उच्च साइदिता
(4) निम्न साइदिता

80. बीजाणु का पिंड, बीजाणु चुंब से कहाँ पर संलयित होता है?
(1) निभाया
(2) नाफिका
(3) बीजाणुद्दार
(4) बीजाणुकाय

81. प्रकाश्वरण में RuBisCo एंजाइम की ऑक्सीजनीकरण चक्र के संदर्भ में किसका नियंत्रण होता है?
(1) 4-C यौगिक का 1 अणु और 2-C यौगिक का 1 अणु
(2) 3-C यौगिक के 2 अणु
(3) 3-C यौगिक का 1 अणु
(4) 6-C यौगिक का 1 अणु

82. निम्न संबंधों का मिलान कर ज्ञात कितना का यह करना?

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
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<tbody>
<tr>
<td>(a) इंसोफिल</td>
<td>(i) प्रतिक्षा प्रतिक्रिया</td>
</tr>
<tr>
<td>(b) वेसोफिल</td>
<td>(ii) भक्षण करना</td>
</tr>
<tr>
<td>(c) न्युरोफिल</td>
<td>(iii) हिस्टामिनेज, विनाशकारी एंजाइमों का मौध्य</td>
</tr>
<tr>
<td>(d) लिफ्सोफाइट</td>
<td>(iv) कण निम्नमें हिस्टामिन होते हैं का मौध्य करना</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)
(1) (ii) (i) (iii) (iv)
(2) (iii) (iv) (ii) (i)
(3) (iv) (i) (ii) (iii)
(4) (i) (ii) (iv) (iii)

83. निम्न के कौन ग्राफो पट्टक से अंडा का मौध्य (अंडोफल्स) करेगा?
(1) FSH की निम्न साइदिता
(2) एस्ट्रोजेन की उच्च साइदिता
(3) प्रोग्रेस्टोर की उच्च साइदिता
(4) LH की निम्न साइदिता
84. अंतःख्यान के दौरान होने वाली सही पटनाओं का चयन करो।
   (a) डायफ्राम का संकुचन
   (b) बाहर अंतरपुर्ण पेयपिया का संकुचन
   (c) फुंगुल का आवरण कम होना
   (d) अंतर पुंगुल का बढ़ना
   (1) बेकार (d)
   (2) (a) एवं (b)
   (3) (c) एवं (d)
   (4) (a), (b) एवं (d)

85. निम्न में किस तकनीक को सहायता से ऐसी रजियां जो गर्भधारण नहीं कर सकती है?
   (1) GIFT एवं ICSI
   (2) ZIFT एवं IUT
   (3) GIFT एवं ZIFT
   (4) ICSI एवं ZIFT

86. फ़्लॉरिडियम की संक्रमक अवस्था जो मानव शरीर में प्रवेश करती है, है:
   (1) नर युपकजनक
   (2) पोषण
   (3) जीवाशुद्ध
   (4) मादा युपकजनक

87. निम्न स्तंभों का मिलान कर सही विकल्प का चयन करो।

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
<th>स्तंभ - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) अपशा</td>
<td>(i) ईंड्रोजन</td>
</tr>
<tr>
<td>(b) जोना पेय्वुरिदा</td>
<td>(ii) मानव जरालु गैनेद्रोजनपिन</td>
</tr>
<tr>
<td>(c) बल्झ-पुरुरधेल प्रविधिया</td>
<td>(iii) अंडरैस की परत</td>
</tr>
<tr>
<td>(d) लिडिंग कोशिकाएँ</td>
<td>(iv) शिसन का स्तंभन</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(a) और (b)</th>
<th>(c) और (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) (ii) (iii) (iv) (i)</td>
<td></td>
</tr>
<tr>
<td>(2) (iv) (iii) (i) (ii)</td>
<td></td>
</tr>
<tr>
<td>(3) (i) (iv) (ii) (iii)</td>
<td></td>
</tr>
<tr>
<td>(4) (iii) (ii) (iv) (i)</td>
<td></td>
</tr>
</tbody>
</table>

88. सही मिलान का चयन करो।
   (1) खेलीलितामिता - X संलग्न
   (2) होमोफीलितिया - Y संलग्न
   (3) फ़ैनिलकोटेयोलिया - अलिंग ज्रोमोसोम प्रभावी लक्षण
   (4) दात कोशिका अरकता - अलिंग ज्रोमोसोम अप्रभावी लक्षण,
     ज्रोमोसोम-11

<table>
<thead>
<tr>
<th>संलग्न</th>
<th>संलग्न</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) X</td>
<td>(2) Y</td>
</tr>
<tr>
<td>(3) ज्रोमोसोम-11</td>
<td>(4) ज्रोमोसोम-11</td>
</tr>
</tbody>
</table>

84. Select the correct events that occur during inspiration.
   (a) Contraction of diaphragm
   (b) Contraction of external inter-costal muscles
   (c) Pulmonary volume decreases
   (d) Intra pulmonary pressure increases
   (1) only (d)
   (2) (a) and (b)
   (3) (c) and (d)
   (4) (a), (b) and (d)

85. In which of the following techniques, the embryos are transferred to assist those females who cannot conceive?
   (1) GIFT and ICSI
   (2) ZIFT and IUT
   (3) GIFT and ZIFT
   (4) ICSI and ZIFT

86. The infectious stage of Plasmodium that enters the human body is:
   (1) Male gametocytes
   (2) Trophozoites
   (3) Sporozoites
   (4) Female gametocytes

87. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Placenta</td>
<td>(i) Androgens</td>
</tr>
<tr>
<td>(b) Zona pellucida</td>
<td>(ii) Human Chorionic Gonadotropin (hCG)</td>
</tr>
<tr>
<td>(c) Bulbo-urethral</td>
<td>(iii) Layer of the ovum glands</td>
</tr>
<tr>
<td>(d) Leydig cells</td>
<td>(iv) Lubrication of the Penis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(a) (b) (c) (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) (ii) (iii) (iv) (i)</td>
</tr>
<tr>
<td>(2) (iv) (iii) (i) (ii)</td>
</tr>
<tr>
<td>(3) (i) (iv) (ii) (iii)</td>
</tr>
<tr>
<td>(4) (iii) (ii) (iv) (i)</td>
</tr>
</tbody>
</table>

88. Select the correct match.
   (1) Thalassemia - X linked
   (2) Haemophilia - Y linked
   (3) Phenylketonuria - Autosomal dominant trait,
     chromosome-11
   (4) Sickle cell anaemia - Autosomal recessive trait,
     chromosome-11
Which of the following statements is **correct**?

1. Adenine does not pair with thymine.
2. Adenine pairs with thymine through two H-bonds.
3. Adenine pairs with thymine through one H-bond.
4. Adenine pairs with thymine through three H-bonds.

Which one of the following is the most abundant protein in the animals?

1. Insulin
2. Haemoglobin
3. Collagen
4. Lectin

Which of the following pairs is of unicellular algae?

1. Chlorella and Spirulina
2. Laminaria and Sargassum
3. Gelidium and Gracilaria
4. Anabaena and Volvox

The plant parts which consist of two generations - one within the other:

1. (a) and (d)
2. (a) only
3. (a), (b) and (c)
4. (c) and (d)

Identify the **incorrect** statement.

1. Due to deposition of tannins, resins, oils etc., heart wood is dark in colour.
2. Heart wood does not conduct water but gives mechanical support.
3. Sapwood is involved in conduction of water and minerals from root to leaf.
4. Sapwood is the innermost secondary xylem and is lighter in colour.
94. By which method was a new breed 'Hisardale' of sheep formed by using Bikaneri ewes and Marino rams?
(1) Inbreeding
(2) Out crossing
(3) Mutational breeding
(4) Cross breeding

95. Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage \( (G_0) \). This process occurs at the end of:
(1) \( G_2 \) phase
(2) \( M \) phase
(3) \( G_1 \) phase
(4) \( S \) phase

96. Identify the correct statement with reference to human digestive system.
(1) Vermiform appendix arises from duodenum.
(2) Ileum opens into small intestine.
(3) Serosa is the innermost layer of the alimentary canal.
(4) Ileum is a highly coiled part.

97. Which of the following refer to correct example(s) of organisms which have evolved due to changes in environment brought about by anthropogenic action?
(a) Darwin’s Finches of Galapagos islands.
(b) Herbicide resistant weeds.
(c) Drug resistant eukaryotes.
(d) Man-created breeds of domesticated animals like dogs.
(1) only (d)
(2) only (a)
(3) (a) and (c)
(4) (b), (c) and (d)
98. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
<th>स्तंभ - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Pituitary gland</td>
<td>(i) Grave’s disease</td>
</tr>
<tr>
<td>(b) Thyroid gland</td>
<td>(ii) Diabetes mellitus</td>
</tr>
<tr>
<td>(c) Adrenal gland</td>
<td>(iii) Diabetes insipidus</td>
</tr>
<tr>
<td>(d) Pancreas</td>
<td>(iv) Addison’s disease</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)
(1) (ii) (i) (iv) (iii)
(2) (iv) (iii) (i) (ii)
(3) (iii) (ii) (i) (iv)
(4) (iii) (i) (iv) (ii)

99. Select the option including all sexually transmitted diseases.

(1) Cancer, AIDS, Syphilis
(2) Gonorrhoea, Syphilis, Genital herpes
(3) Gonorrhoea, Malaria, Genital herpes
(4) AIDS, Malaria, Filaria

100. The number of substrate level phosphorylations in one turn of the citric acid cycle is:

(1) Three
(2) Zero
(3) One
(4) Two

101. Montreal protocol was signed in 1987 for control of:

(1) Disposal of e-wastes
(2) Transport of Genetically modified organisms from one country to another
(3) Emission of ozone depleting substances
(4) Release of Green House gases
102. Match the following concerning essential elements and their functions in plants:

(a) Iron (i) Photolysis of water
(b) Zinc (ii) Pollen germination
(c) Boron (iii) Required for chlorophyll biosynthesis
(d) Manganese (iv) IAA biosynthesis

Select the correct option:

(a) (b) (c) (d)

(1) (iv) (i) (ii) (iii)
(2) (ii) (i) (iv) (iii)
(3) (iv) (iii) (ii) (i)
(4) (iii) (iv) (ii) (i)

103. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
<th>स्तंभ - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) यूथ, बहुहारी पौधक</td>
<td>(i) एस्टरियस</td>
</tr>
<tr>
<td>(b) व्यक्तियों में अर्थ समान एवं (ii) विशुद्ध लालों में द्विपाय समानता</td>
<td></td>
</tr>
<tr>
<td>(c) पुल फुफ्फुस</td>
<td>(iii) टीटोप्लासमा</td>
</tr>
<tr>
<td>(d) जीवसंदीय (iv) लोकस्टा</td>
<td></td>
</tr>
</tbody>
</table>

Select the correct option:

(a) (b) (c) (d)

(1) (ii) (i) (iii) (iv)
(2) (i) (iii) (ii) (iv)
(3) (iv) (i) (ii) (iii)
(4) (iii) (ii) (i) (iv)

104. According to Robert May, the global species diversity is about:

(1) 7 million
(2) 1.5 million
(3) 20 million
(4) 50 million

105. Ray florets have:

(1) Half inferior ovary
(2) Inferior ovary
(3) Superior ovary
(4) Hypogynous ovary
106. If the distance between two consecutive base pairs is 0.34 nm and the total number of base pairs of a DNA double helix in a typical mammalian cell is $6.6 \times 10^9$ bp, then the length of the DNA is approximately:

(1) 2.7 meters
(2) 2.0 meters
(3) 2.5 meters
(4) 2.2 meters

107. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
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</tr>
</thead>
<tbody>
<tr>
<td>(a) Bt cotton</td>
<td>(i) Gene therapy</td>
</tr>
<tr>
<td>(b) Adenosine deaminase deficiency</td>
<td>(ii) Cellular defence</td>
</tr>
<tr>
<td>(c) RNAi</td>
<td>(iii) Detection of HIV infection</td>
</tr>
<tr>
<td>(d) PCR</td>
<td>(iv) <em>Bacillus thuringiensis</em></td>
</tr>
</tbody>
</table>

108. Match the trophic levels with their correct species examples in grassland ecosystem.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Fourth trophic level</td>
<td>(i) Crow</td>
</tr>
<tr>
<td>(b) Second trophic level</td>
<td>(ii) Vulture</td>
</tr>
<tr>
<td>(c) First trophic level</td>
<td>(iii) Rabbit</td>
</tr>
<tr>
<td>(d) Third trophic level</td>
<td>(iv) Grass</td>
</tr>
</tbody>
</table>

Select the correct option:

(a) (i) (ii) (iii) (iv)
(b) (ii) (iii) (iv) (i)
(c) (iii) (ii) (i) (iv)
(d) (iv) (iii) (ii) (i)
109. Match the following diseases with the causative organism and select the correct option.

<table>
<thead>
<tr>
<th>संबंध - I</th>
<th>संबंध - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Typhoid</td>
<td>(i) Wuchereria</td>
</tr>
<tr>
<td>(b) Pneumonia</td>
<td>(ii) Plasmodium</td>
</tr>
<tr>
<td>(c) Filariasis</td>
<td>(iii) Salmonella</td>
</tr>
<tr>
<td>(d) Malaria</td>
<td>(iv) Haemophilus</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)
(1) (iv) (i) (ii) (iii)
(2) (i) (iii) (ii) (iv)
(3) (iii) (iv) (i) (ii)
(4) (ii) (i) (iii) (iv)

110. The roots that originate from the base of the stem are:

(1) Lateral roots
(2) Fibrous roots
(3) Primary roots
(4) Prop roots

111. Meiotic division of the secondary oocyte is completed:

(1) At the time of fusion of a sperm with an ovum
(2) Prior to ovulation
(3) At the time of copulation
(4) After zygote formation

112. Identify the wrong statement with regard to Restriction Enzymes.

(1) Sticky ends can be joined by using DNA ligases.
(2) Each restriction enzyme functions by inspecting the length of a DNA sequence.
(3) They cut the strand of DNA at palindromic sites.
(4) They are useful in genetic engineering.

113. In relation to Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is correct?

(1) There is no relationship between Gross primary productivity and Net primary productivity.
(2) Gross primary productivity is always less than net primary productivity.
(3) Gross primary productivity is always more than net primary productivity.
(4) Gross primary productivity and Net primary productivity are one and same.
114. The process of growth is maximum during:
(1) Dormancy
(2) Log phase
(3) Lag phase
(4) Senescence

115. The sequence that controls the copy number of the linked DNA in the vector, is termed:
(1) Recognition site
(2) Selectable marker
(3) Ori site
(4) Palindromic sequence

116. Name the enzyme that facilitates opening of DNA helix during transcription.
(1) RNA polymerase
(2) DNA ligase
(3) DNA helicase
(4) DNA polymerase

117. Snow-blindness in Antarctic region is due to:
(1) Damage to retina caused by infra-red rays
(2) Freezing of fluids in the eye by low temperature
(3) Inflammation of cornea due to high dose of UV-B radiation
(4) High reflection of light from snow

118. Strobili or cones are found in:
(1) Equisetum
(2) Salvinia
(3) Pteris
(4) Marchantia

119. Match the following columns and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Floating Ribs</td>
<td>(i) Located between second and seventh ribs</td>
</tr>
<tr>
<td>(b) Acromion</td>
<td>(ii) Head of the Humerus</td>
</tr>
<tr>
<td>(c) Scapula</td>
<td>(iii) Clavicle</td>
</tr>
<tr>
<td>(d) Glenoid cavity</td>
<td>(iv) Do not connect with the sternum</td>
</tr>
</tbody>
</table>

(a) (b) (c) (d)
120. Which of the following is put into Anaerobic sludge digester for further sewage treatment?
(1) Activated sludge
(2) Primary sludge
(3) Floating debris
(4) Effluents of primary treatment

121. Identify the wrong statement with reference to the gene 'I' that controls ABO blood groups.
(1) Allele 'i' does not produce any sugar.
(2) The gene (I) has three alleles.
(3) A person will have only two of the three alleles.
(4) When I^A and I^B are present together, they express same type of sugar.

122. The ovary is half inferior in:
(1) Plum
(2) Brinjal
(3) Mustard
(4) Sunflower

123. The first phase of translation is:
(1) Recognition of an anti-codon
(2) Binding of mRNA to ribosome
(3) Recognition of DNA molecule
(4) Aminoacylation of tRNA

124. In gel electrophoresis, separated DNA fragments can be visualized with the help of:
(1) Ethidium bromide in infrared radiation
(2) Acetocarmine in bright blue light
(3) Ethidium bromide in UV radiation
(4) Acetocarmine in UV radiation

125. Dissolution of the synaptonemal complex occurs during:
(1) Leptotene
(2) Pachytene
(3) Zygotene
(4) Diplotene
126. Identify the substances having glycosidic bond and peptide bond, respectively in their structure:
   (1) Inulin, insulin
   (2) Chitin, cholesterol
   (3) Glycerol, trypsin
   (4) Cellulose, lecithin

127. Name the plant growth regulator which upon spraying on sugarcane crop, increases the length of stem, thus increasing the yield of sugarcane crop.
   (1) Abscisic acid
   (2) Cytokin
   (3) Gibberellin
   (4) Ethylene

128. Which of the following statements about inclusion bodies is incorrect?
   (1) These represent reserve material in cytoplasm.
   (2) They are not bound by any membrane.
   (3) They are involved in ingestion of food particles.
   (4) They lie free in the cytoplasm.

129. Which of the following regions of the globe exhibits highest species diversity?
   (1) Amazon forests
   (2) Western Ghats of India
   (3) Madagascar
   (4) Himalayas

130. How many true breeding pea plant varieties did Mendel select as pairs, which were similar except in one character with contrasting traits?
   (1) 8
   (2) 4
   (3) 2
   (4) 14
131. Identify the wrong statement with reference to immunity.

(1) Foetus receives some antibodies from mother, it is an example for passive immunity.
(2) When exposed to antigen (living or dead) antibodies are produced in the host’s body. It is called “Active immunity”.
(3) When ready-made antibodies are directly given, it is called “Passive immunity”.
(4) Active immunity is quick and gives full response.

132. Which of the following is not an attribute of a population?

(1) Species interaction
(2) Sex ratio
(3) Natality
(4) Mortality

133. Choose the correct pair from the following:

(1) Exonucleases - Make cuts at specific positions within DNA
(2) Ligases - Join the two DNA molecules
(3) Polymerases - Break the DNA into fragments
(4) Nucleases - Separate the two strands of DNA

134. The process responsible for facilitating loss of water in liquid form from the tip of grass blades at night and in early morning is:

(1) Plasmolysis
(2) Transpiration
(3) Root pressure
(4) Imbibition

135. Which of the following is not an inhibitory substance governing seed dormancy?

(1) Para-ascorbic acid
(2) Gibberellic acid
(3) Abscisic acid
(4) Phenolic acid
136. निम्नलिखित क्रम को सुमारित कीजिए और उचित विकल्प पहचानिए।

| (a)  | CO(g) + H₂(g) | (i) Mg(HCO₃)₂ + Ca(HCO₃)₂ |
| (b)  | जल की अस्थायी कटौता | (ii) एक इलेक्ट्रॉन न्यून पारी हाइड्राइड |
| (c)  | B₂H₆ | (iii) संश्लेषण गैस |
| (d)  | H₂O₂ | (iv) असमतली संरचना |

(a) (b) (c) (d)
(1) (i) (iii) (ii) (iv)
(2) (iii) (i) (ii) (iv)
(3) (iii) (ii) (i) (iv)
(4) (iii) (iv) (ii) (i)

137. निम्नलिखित में से किसके कारण एक तृतीय स्थिर \( \text{B₂H₆} \) कार्बोनाइड एक द्वितीय स्थिर \( \text{CO(g)} + \text{H₂(g)} \) कार्बोनाइड से अधिक स्थायी होता है?

| (1) | अतिसंयुग्मन |
| (2) | \(-\text{CH₃} \) समूह के \(-I\) प्रभाव के कारण |
| (3) | \(-\text{CH₃} \) समूह के \(+R\) प्रभाव के कारण |
| (4) | \(-\text{CH₃} \) समूह के \(-R\) प्रभाव के कारण |

138. निम्नलिखित आबंधणों में कार्बन की ऑक्सीकरण संख्या में क्या परिवर्तन होता है?

\[ \text{CH}_4(g) + 4\text{Cl}_2(g) \rightarrow \text{CCl}_4(l) + 4\text{HCl}(g) \]

| (1) | 0 से \(-4\) |
| (2) | \(+4\) से \(+4\) |
| (3) | 0 से \(+4\) |
| (4) | \(-4\) से \(+4\) |

139. सुक्रोस जल-अपयुक्त पर देता है:

| (1) | \(\alpha\)-D-फ्रूक्सोस + \(\beta\)-D-फ्रूक्सोस |
| (2) | \(\beta\)-D-ग्ल्यूकोस + \(\alpha\)-D-फ्रूक्सोस |
| (3) | \(\alpha\)-D-ग्ल्यूकोस + \(\beta\)-D-ग्ल्यूकोस |
| (4) | \(\alpha\)-D-ग्ल्यूकोस + \(\beta\)-D-फ्रूक्सोस |

140. \(\text{Cr}^{2+}\) के लिए, केवल प्रचक्षण चुंबकीय आवृत्ति का परिकलित मान है:

| (1) | 2.84 BM |
| (2) | 3.87 BM |
| (3) | 4.90 BM |
| (4) | 5.92 BM |

136. Match the following and identify the correct option.

| (a)  | CO(g) + H₂(g) | (i) Mg(HCO₃)₂ + Ca(HCO₃)₂ |
| (b)  | Temporary hardness of water | (ii) An electron deficient hydride |
| (c)  | B₂H₆ | (iii) Synthesis gas |
| (d)  | H₂O₂ | (iv) Non-planar structure |

(a) (b) (c) (d)
(1) (i) (iii) (ii) (iv)
(2) (iii) (i) (ii) (iv)
(3) (iii) (ii) (i) (iv)
(4) (iii) (iv) (ii) (i)

137. A tertiary butyl cation is more stable than a secondary butyl cation because of which of the following?

| (1) | Hyperconjugation |
| (2) | \(-I\) effect of \(-\text{CH}_3\) groups |
| (3) | \(+R\) effect of \(-\text{CH}_3\) groups |
| (4) | \(-R\) effect of \(-\text{CH}_3\) groups |

138. What is the change in oxidation number of carbon in the following reaction?

\[ \text{CH}_4(g) + 4\text{Cl}_2(g) \rightarrow \text{CCl}_4(l) + 4\text{HCl}(g) \]

| (1) | 0 to \(-4\) |
| (2) | \(+4\) to \(+4\) |
| (3) | 0 to \(+4\) |
| (4) | \(-4\) to \(+4\) |

139. Sucrose on hydrolysis gives:

| (1) | \(\alpha\)-D-Fructose + \(\beta\)-D-Fructose |
| (2) | \(\beta\)-D-Glucose + \(\alpha\)-D-Fructose |
| (3) | \(\alpha\)-D-Glucose + \(\beta\)-D-Glucose |
| (4) | \(\alpha\)-D-Glucose + \(\beta\)-D-Fructose |

140. The calculated spin only magnetic moment of \(\text{Cr}^{2+}\) ion is:

| (1) | 2.84 BM |
| (2) | 3.87 BM |
| (3) | 4.90 BM |
| (4) | 5.92 BM |
141. Identify a molecule which does not exist.
   (1) O₂
   (2) He₂
   (3) Li₂
   (4) C₂

142. Which of the following oxoacid of sulphur has $\text{O}...\text{O}...\text{O}$ linkage?
   (1) H₂S₂O₇, pyrosulphuric acid
   (2) H₂SO₃, sulphurous acid
   (3) H₂SO₄, sulphuric acid
   (4) H₂S₂O₈, peroxodisulphuric acid

143. Which of the following is the correct order of increasing field strength of ligands to form coordination compounds?
   (1) CN⁻ < C₂O₄²⁻ < SCN⁻ < F⁻
   (2) SCN⁻ < F⁻ < C₂O₄²⁻ < CN⁻
   (3) F⁻ < SCN⁻ < C₂O₄²⁻ < CN⁻
   (4) F⁻ < SCN⁻ < C₂O₄²⁻ < CN⁻

144. The number of Faradays (F) required to produce 20 g of calcium from molten CaCl₂ (Atomic mass of Ca = 40 g mol⁻¹) is:
   (1) 4
   (2) 1
   (3) 2
   (4) 3

145. Which of the following is a cationic detergent?
   (1) Sodium dodecylbenzene sulphonate
   (2) Sodium lauryl sulphate
   (3) Sodium stearate
   (4) Cetyltrimethyl ammonium bromide
147. Identify the incorrect statement.

(1) The oxidation states of chromium in \( \text{Cr}^{2-} \) and \( \text{Cr}_2\text{O}_7^{2-} \) are not the same.
(2) \( \text{Cr}^{2+}(\text{d}^4) \) is a stronger reducing agent than \( \text{Fe}^{2+}(\text{d}^6) \) in water.
(3) The transition metals and their compounds are known for their catalytic activity due to their ability to adopt multiple oxidation states and to form complexes.
(4) Interstitial compounds are those that are formed when small atoms like H, C or N are trapped inside the crystal lattices of metals.

148. Which of the following alkane cannot be made in good yield by Wurtz reaction?

(1) n-Butane
(2) n-Hexane
(3) 2,3-Dimethylbutane
(4) n-Heptane

149. Urea reacts with water to form A which will decompose to form B. B when passed through \( \text{Cu}^{2+}(\text{aq}) \), deep blue colour solution C is formed. What is the formula of C from the following?

(1) \( \text{CuCO}_3\cdot\text{Cu(OH)}_2 \)
(2) \( \text{CuSO}_4 \)
(3) \( [\text{Cu(NH}_3)_4]^{2+} \)
(4) \( \text{Cu(OH)}_2 \)

150. The freezing point depression constant \( (K_f) \) of benzene is 5.12 K kg mol\(^{-1}\). The freezing point depression for the solution of molality 0.078 m containing a non-electrolyte solute in benzene is (rounded off upto two decimal places):

(1) 0.60 K
(2) 0.20 K
(3) 0.80 K
(4) 0.40 K

151. The number of protons, neutrons and electrons in \(^{175}_{71}\text{Lu} \), respectively, are:

(1) 175, 104 and 71
(2) 71, 104 and 71
(3) 104, 71 and 71
(4) 71, 71 and 104
152. Identify compound X in the following sequence of reactions:

\[
\text{CH}_3\text{Cl}_2/\text{hv} \xrightarrow{X} \text{H}_2\text{O} \rightarrow \text{CH}_3\text{CHO} \quad \text{at} \ 373 \text{ K}
\]

(1) [Image of compound 1]

(2) [Image of compound 2]

(3) [Image of compound 3]

(4) [Image of compound 4]

153. Identify the correct statement from the following:

(1) Pig iron can be moulded into a variety of shapes.

(2) Wrought iron is impure iron with 4% carbon.

(3) Blister copper has blistered appearance due to evolution of CO\textsubscript{2}.

(4) Vapour phase refining is carried out for Nickel by Van Arkel method.
154. निम्नलिखित में से अणुओं के किस समुच्चय का शून्य दिशा/निर्दिश आयुर्स होता है?

(1) बोरोन डाइफ्लूराइड, बेरिलियम डाइफ्लूराइड, कार्बन डाइऑक्साइड, 1,4-डाइक्लोरोबेंजीन 
(2) आमोनिया, बेरिलियम डाइफ्लूराइड, जल, 1,4-डाइक्लोरोबेंजीन 
(3) बोरोन डाइफ्लूराइड, हाइड्रोजन फ्लूराइड, कार्बन डाइऑक्साइड, 1,3-डाइक्लोरोबेंजीन 
(4) नाइट्रोजन डाइफ्लूराइड, बेरिलियम डाइफ्लूराइड, जल, 1,3-डाइक्लोरोबेंजीन 

155. काल्जी वर्गलेखीकी का, उदाहरण है:

(1) स्तंभ वर्गलेखीका का 
(2) अभिशोधन वर्गलेखीका का 
(3) विपातन वर्गलेखीका का 
(4) पतली पतर वर्गलेखीका का 

156. अनुयुक्त सुमेल को पहचानें।

<table>
<thead>
<tr>
<th>नाम</th>
<th>आई.यू.पी.ए.एफ. अधिकृत नाम</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) अननिलधूनिम</td>
<td>(i) मेंडलिमियम</td>
</tr>
<tr>
<td>(b) अननिलीडियम</td>
<td>(ii) लाउरिमियम</td>
</tr>
<tr>
<td>(c) अननिलहेक्सियम</td>
<td>(iii) सीबीगिमियम</td>
</tr>
<tr>
<td>(d) अननाइनिमियम</td>
<td>(iv) डाम्स्ट्रैंटियम</td>
</tr>
</tbody>
</table>

157. Ni(OH)\textsubscript{2} की 0.1 M NaOH में विलोकन जात कीजिए।

दिया है कि Ni(OH)\textsubscript{2} का आपनी पुनर्निर्माण 2 \times 10^{-15} है।

(1) 1 \times 10^{-8} M 
(2) 2 \times 10^{-13} M 
(3) 2 \times 10^{-8} M 
(4) 1 \times 10^{-13} M 

158. निम्नलिखित में से कौन-सा एक प्राकृतिक बाहुलक है?

(1) पाल्ट (भूटादाइन-एपेक्सलोनाइट्राइल) 
(2) सिस-1,4-पाल्टाइडोप्रीन 
(3) पाल्ट (भूटादाइन-स्ट्राइड्रन) 
(4) पाल्टम्यूटाइडराइन 

159. बेरिलियम प्लास्टिक और ऐल्लिग्युटाइन को तट से NaOH को उपर्युक्ति में अभिक्रिया इस प्रकार जानी जाती है:

(1) क्रैंड ऐल्लिज्युटिन संशोधन 
(2) ऐल्लिज्युटिन संशोधन 
(3) खोज कृतियों भारतीय अभिक्रिया 
(4) क्रैंड कृतियों भारतीय अभिक्रिया 

154. Which of the following set of molecules will have zero dipole moment?

(1) Boron trifluoride, beryllium difluoride, carbon dioxide, 1,4-dichlorobenzene 
(2) Ammonia, beryllium difluoride, water, 1,4-dichlorobenzene 
(3) Boron trifluoride, hydrogen fluoride, carbon dioxide, 1,3-dichlorobenzene 
(4) Nitrogen trifluoride, beryllium difluoride, water, 1,3-dichlorobenzene 

155. Paper chromatography is an example of:

(1) Column chromatography 
(2) Adsorption chromatography 
(3) Partition chromatography 
(4) Thin layer chromatography 

156. Identify the incorrect match.

<table>
<thead>
<tr>
<th>Name</th>
<th>IUPAC Official Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Unnilunium (i) Mendelevium</td>
</tr>
<tr>
<td>(b)</td>
<td>Unniltrium (ii) Lawrencium</td>
</tr>
<tr>
<td>(c)</td>
<td>Unnilhexium (iii) Seaborgium</td>
</tr>
<tr>
<td>(d)</td>
<td>Unununnium (iv) Darmstadtium</td>
</tr>
</tbody>
</table>

157. Find out the solubility of Ni(OH)\textsubscript{2} in 0.1 M NaOH.

Given that the ionic product of Ni(OH)\textsubscript{2} is \(2 \times 10^{-15}\).

(1) 1 \times 10^{-8} M 
(2) 2 \times 10^{-13} M 
(3) 2 \times 10^{-8} M 
(4) 1 \times 10^{-13} M 

158. Which of the following is a natural polymer?

(1) poly (Butadiene-acrylonitrile) 
(2) cis-1,4-polysoprene 
(3) poly (Butadiene-styrene) 
(4) polybutadiene 

159. Reaction between benzaldehyde and acetophenone in presence of dilute NaOH is known as:

(1) Cross Aldol condensation 
(2) Aldol condensation 
(3) Cannizzaro’s reaction 
(4) Cross Cannizzaro’s reaction
160. The mixture which shows positive deviation from Raoult’s law is:
(1) Chloroethane + Bromoethane
(2) Ethanol + Acetone
(3) Benzene + Toluene
(4) Acetone + Chloroform

161. The rate constant for a first order reaction is $4.606 \times 10^{-3} \text{ s}^{-1}$. The time required to reduce 2.0 g of the reactant to 0.2 g is:
(1) 1000 s
(2) 100 s
(3) 200 s
(4) 500 s

162. HCl was passed through a solution of CaCl$_2$, MgCl$_2$ and NaCl. Which of the following compound(s) crystallise(s)?
(1) NaCl, MgCl$_2$ and CaCl$_2$
(2) Both MgCl$_2$ and CaCl$_2$
(3) Only NaCl
(4) Only MgCl$_2$

163. The correct option for free expansion of an ideal gas under adiabatic condition is:
(1) $q > 0$, $\Delta T > 0$ and $w > 0$
(2) $q = 0$, $\Delta T = 0$ and $w = 0$
(3) $q = 0$, $\Delta T < 0$ and $w > 0$
(4) $q < 0$, $\Delta T = 0$ and $w = 0$

164. Identify the correct statements from the following:
(a) CO$_2(g)$ is used as refrigerant for ice-cream and frozen food.
(b) The structure of C$_{60}$ contains twelve six carbon rings and twenty five carbon rings.
(c) ZSM-5, a type of zeolite, is used to convert alcohols into gasoline.
(d) CO is colorless and odourless gas.
(1) (a) and (b) only
(2) (a), (b) and (c) only
(3) (a) and (c) only
(4) (b) and (c) only
165. Hydrolysis of sucrose is given by the following reaction.

$$\text{Sucrose} + H_2O \rightleftharpoons \text{Glucose} + \text{Fructose}$$

If the equilibrium constant ($K_c$) is $2 \times 10^{13}$ at 300 K, the value of $\Delta_r G^\circ$ at the same temperature will be:

1. $-8.314 \ J \ mol^{-1} \ K^{-1} \times 300 \ K \times \ln(4 \times 10^{13})$
2. $-8.314 \ J \ mol^{-1} \ K^{-1} \times 300 \ K \times \ln(2 \times 10^{13})$
3. $8.314 \ J \ mol^{-1} \ K^{-1} \times 300 \ K \times \ln(2 \times 10^{13})$
4. $8.314 \ J \ mol^{-1} \ K^{-1} \times 300 \ K \times \ln(3 \times 10^{13})$

166. Which of the following amine will give the carbylamine test?

(1) $\text{NHC}_2\text{H}_5$
(2) $\text{NH}_2$
(3) $\text{NHCH}_3$
(4) $\text{N(CH}_3)_2$
167. An alkene on ozonolysis gives methanal as one of the product. Its structure is:

1. \( \text{CH}_2\text{CH}_2\text{CH}_3 \)
2. \( \text{CH} = \text{CH} - \text{CH}_3 \)
3. \( \text{CH}_2 - \text{CH}_2 - \text{CH}_3 \)
4. \( \text{CH}_2 - \text{CH} = \text{CH}_2 \)

168. Anisole on cleavage with HI gives:

1. \( \text{I} + \text{C}_2\text{H}_5\text{OH} \)
2. \( \text{I} + \text{CH}_3\text{I} \)
3. \( \text{I} + \text{CH}_3\text{OH} \)
4. \( \text{I} + \text{C}_2\text{H}_5\text{I} \)
169. Elimination reaction of 2-Bromo-pentane to form pent-2-ene is:
(a) β-Elimination reaction
(b) Follows Zaitsev rule
(c) Dehydrohalogenation reaction
(d) Dehydration reaction
(1) (a), (b), (d)
(2) (a), (b), (c)
(3) (a), (c), (d)
(4) (b), (c), (d)

170. An increase in the concentration of the reactants of a reaction leads to change in:
(1) collision frequency
(2) activation energy
(3) heat of reaction
(4) threshold energy

171. Which of the following is a basic amino acid?
(1) Lysine
(2) Serine
(3) Alanine
(4) Tyrosine

172. The following metal ion activates many enzymes, participates in the oxidation of glucose to produce ATP and with Na, is responsible for the transmission of nerve signals.
(1) Potassium
(2) Iron
(3) Copper
(4) Calcium

173. For the reaction, \( 2\text{Cl}(g) \rightarrow \text{Cl}_2(g) \), the correct option is:
(1) \( \Delta_H < 0 \) and \( \Delta_S < 0 \)
(2) \( \Delta_H > 0 \) and \( \Delta_S > 0 \)
(3) \( \Delta_H > 0 \) and \( \Delta_S < 0 \)
(4) \( \Delta_H < 0 \) and \( \Delta_S > 0 \)
174. निम्नलिखित को सुमारित कीजिए :

<table>
<thead>
<tr>
<th>ऑक्साइड</th>
<th>प्रकृति</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) CO</td>
<td>(i) आर्लीय</td>
</tr>
<tr>
<td>(b) BaO</td>
<td>(ii) उदासीन</td>
</tr>
<tr>
<td>(c) Al₂O₃</td>
<td>(iii) अस्तीत्व</td>
</tr>
<tr>
<td>(d) Cl₂O₇</td>
<td>(iv) उभयभार्मी</td>
</tr>
</tbody>
</table>

निम्नलिखित में से कौन-सा सही विकल्प है?

(a) (b) (c) (d)

(1) (iv) (iii) (ii) (i)
(2) (i) (ii) (iii) (iv)
(3) (ii) (i) (iv) (iii)
(4) (iii) (iv) (i) (ii)

175. जीटा विश्व का मापन कोलॉइड की विलयन के किस गुणधर्म के निर्धारण में उपयोगी होता है?

(1) कोलॉइड कणों का आमाप
(2) स्पावता
(3) विलेयता
(4) कोलॉइड कणों की विलेयता

176. एक सिलिंडर में N₂ और Ar गैसों के एक मिश्रण में N₂ के 7 g और Ar के 8 g हैं। यदि सिलिंडर में गैसों के मिश्रण का कुल दबाव 27 bar हो, तो N₂ का आंशिक दबाव है,

[परमाणु द्वारमाणों (g mol⁻¹ में) : N = 14, Ar = 40 उपयोग कीजिए]

(1) 18 bar
(2) 9 bar
(3) 12 bar
(4) 15 bar

177. निम्नलिखित में से कौन-सा कार्बन मोनोक्साइड के लिए सही नहीं है?

(1) यह अघूर्ण दहन के कारण उत्पन्न होता है।
(2) यह कार्बोक्सीहीमोग्लोबिन बनाता है।
(3) यह रक्त का ऑक्सीजन वाह योग्यता को घटा देता है।
(4) कार्बोक्सीहीमोग्लोबिन (CO से बांधत हीमोग्लोबिन), ऑक्सीहीमोग्लोबिन से अस्थायी होता है।

174. Match the following :

<table>
<thead>
<tr>
<th>Oxide</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) CO</td>
<td>(i) Basic</td>
</tr>
<tr>
<td>(b) BaO</td>
<td>(ii) Neutral</td>
</tr>
<tr>
<td>(c) Al₂O₃</td>
<td>(iii) Acidic</td>
</tr>
<tr>
<td>(d) Cl₂O₇</td>
<td>(iv) Amphoteric</td>
</tr>
</tbody>
</table>

Which of the following is correct option?

(a) (b) (c) (d)

(1) (iv) (iii) (ii) (i)
(2) (i) (ii) (iii) (iv)
(3) (ii) (i) (iv) (iii)
(4) (iii) (iv) (i) (ii)

175. Measuring Zeta potential is useful in determining which property of colloidal solution?

(1) Size of the colloidal particles
(2) Viscosity
(3) Solubility
(4) Stability of the colloidal particles

176. A mixture of N₂ and Ar gases in a cylinder contains 7 g of N₂ and 8 g of Ar. If the total pressure of the mixture of the gases in the cylinder is 27 bar, the partial pressure of N₂ is:

[Use atomic masses (in g mol⁻¹) : N = 14, Ar = 40]

(1) 18 bar
(2) 9 bar
(3) 12 bar
(4) 15 bar

177. Which of the following is not correct about carbon monoxide?

(1) It is produced due to incomplete combustion.
(2) It forms carboxyhaemoglobin.
(3) It reduces oxygen carrying ability of blood.
(4) The carboxyhaemoglobin (haemoglobin bound to CO) is less stable than oxyhaemoglobin.
178. एक तत्त्व की 288 pm सेल कोरे वाली खाल केन्द्रित घनीप संरचना है, परमाणु जिन्या है : 

(1) \( \frac{4}{\sqrt{2}} \times 288 \text{ pm} \) 

(2) \( \frac{\sqrt{3}}{4} \times 288 \text{ pm} \) 

(3) \( \frac{\sqrt{2}}{4} \times 288 \text{ pm} \) 

(4) \( \frac{4}{\sqrt{3}} \times 288 \text{ pm} \) 

179. निम्नलिखित में से किसमें परमाणुओं की संख्या अधिकतम होगी ? 

(1) Li(s) का 1 g [Atomic mass of Li = 7] 

(2) Ag(s) का 1 g [Atomic mass of Ag = 108] 

(3) Mg(s) का 1 g [Atomic mass of Mg = 24] 

(4) O_2(g) का 1 g [Atomic mass of O = 16] 

180. ट्वेटाम (Pt) इलेक्ट्रोड का उपयोग करते हुए तन्त्र चुम्बकीय अम्ल के वैधुत अभावन पर, ऐसे दल प्राप्त उत्पाद होगा : 

(1) SO_2 गैस 

(2) हाइड्रोजन गैस 

(3) ऑक्सीजन गैस 

(4) H_2S गैस
रफ कार्य के लिए जगह / Space For Rough Work
Space For Rough Work
<table>
<thead>
<tr>
<th>निम्नलिखित निरीक्षण में से पढ़ें:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. पूरे जाने पर प्रत्येक परीक्षार्थी, निरीक्षक को अपना प्रवेश-पत्र दिखाएं।</td>
</tr>
<tr>
<td>2. अधीश्वर या निरीक्षक की निश्चित अनुमति के बिना कोई परीक्षार्थी अपना स्थान क्षोभ न करें।</td>
</tr>
<tr>
<td>3. कार्यरत निरीक्षक को अपना उत्तर पत्र दिए बिना एवं उपस्थिति-पत्रक पर दुबारा हस्ताक्षर किए बिना कोई परीक्षार्थी परीक्षा हॉल नहीं छोड़ेंगे। यदि किसी परीक्षार्थी ने दूसरी बार उपस्थिति-पत्रक पर हस्ताक्षर नहीं किए तो वह माना जाएगा कि उसने उत्तर पत्र नहीं लौटाया है और यह अनुचित साधन का मामला माना जाएगा।</td>
</tr>
<tr>
<td>4. इलेक्ट्रॉनिक/इलेक्ट्रानिक परिकल्पना का उपयोग वांछित है।</td>
</tr>
<tr>
<td>5. परीक्षा-हॉल में आचरण के लिए परीक्षार्थी, परीक्षा के नियमीय एवं बिनयमों द्वारा नियमित हैं। अनुचित साधन के सभी मामलों का फैसला इस परीक्षा के नियमीय एवं बिनयमों के अनुसार होगा।</td>
</tr>
<tr>
<td>6. किसी हालत में परीक्षा पुरस्कार और उत्तर पत्र का कोई भाग अलग न करें।</td>
</tr>
<tr>
<td>7. परीक्षा पुरस्कार / उत्तर पत्र में दिए गए परीक्षा पुरस्कार संकेत को परीक्षार्थी सही तरीके से उपस्थिति-पत्र में लिखें।</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Read carefully the following instructions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Each candidate must show on demand his/her Admit Card to the Invigilator.</td>
</tr>
<tr>
<td>2. No candidate, without special permission of the Superintendent or Invigilator, would leave his/her seat.</td>
</tr>
<tr>
<td>3. The candidates should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and sign the Attendance Sheet twice. Cases where a candidate has not signed the Attendance Sheet second time will be deemed not to have handed over the Answer Sheet and dealt with as an unfair means case.</td>
</tr>
<tr>
<td>4. Use of Electronic/Manual Calculator is prohibited.</td>
</tr>
<tr>
<td>5. The candidates are governed by all Rules and Regulations of the examination with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of this examination.</td>
</tr>
<tr>
<td>6. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.</td>
</tr>
<tr>
<td>7. The candidates will write the Correct Test Booklet Code as given in the Test Booklet/Answer Sheet in the Attendance Sheet.</td>
</tr>
</tbody>
</table>