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 F4. 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.

Name of the Candidate (in Capitals): ________________________________

Anukarmik: ________________________________

Roll Number: _______ in figures _______ in words

Centre of Examination (in Capitals): ________________________________

Candidate’s Signature: ________________________________

Invigilator’s Signature: ________________________________

Facsimile signature stamp of Centre Superintendent: ________________________________
1. 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:

\[
\begin{align*}
(1) & \quad \frac{3}{2} \\
(2) & \quad \frac{5}{3} \\
(3) & \quad \frac{27}{8} \\
(4) & \quad \frac{9}{4}
\end{align*}
\]

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

\[
\begin{align*}
(1) & \quad -6 \hat{i} \text{ N m} \\
(2) & \quad 6 \hat{k} \text{ N m} \\
(3) & \quad 6 \hat{i} \text{ N m} \\
(4) & \quad 6 \hat{j} \text{ N m}
\end{align*}
\]

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

\[
\begin{align*}
(1) & \quad \text{Both emitter junction as well as the collector junction are forward biased.} \\
(2) & \quad \text{The base region must be very thin and lightly doped.} \\
(3) & \quad \text{Base, emitter and collector regions should have same doping concentrations.} \\
(4) & \quad \text{Base, emitter and collector regions should have same size.}
\end{align*}
\]

4. 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: (\( g = 10 \text{ m/s}^2 \))

\[
\begin{align*}
(1) & \quad 320 \text{ m} \\
(2) & \quad 300 \text{ m} \\
(3) & \quad 360 \text{ m} \\
(4) & \quad 340 \text{ m}
\end{align*}
\]

5. The Brewster's angle \( i_b \) for an interface should be:

\[
\begin{align*}
(1) & \quad 45^\circ < i_b < 90^\circ \\
(2) & \quad i_b = 90^\circ \\
(3) & \quad 0^\circ < i_b < 30^\circ \\
(4) & \quad 30^\circ < i_b < 45^\circ
\end{align*}
\]
6. For the logic circuit shown, the truth table is:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
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<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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

1. semiconductors only
2. insulators and semiconductors
3. metals
4. insulators only

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

1. both forward bias and reverse bias
2. increase in forward current
3. forward bias only
4. reverse bias only

9. Dimensions of stress are:

1. \([ML^0T^{-2}]\)
2. \([ML^{-1}T^{-2}]\)
3. \([MLT^{-2}]\)
4. \([ML^2T^{-2}]\)
10. Taking into account of the significant figures, what is the value of 9.99 m − 0.0099 m?
   (1) 9.980 m
   (2) 9.9 m
   (3) 9.9801 m
   (4) 9.98 m

11. 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) 536 Hz
   (2) 537 Hz
   (3) 523 Hz
   (4) 524 Hz

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

13. 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:
   (1) $e_0 = 8.85 \times 10^{-12} C^2 N^{-1} m^{-2}$
   (2) $0.44 \times 10^{-10} C^2 N^{-1} m^{-2}$
   (3) $5.00 C^2 N^{-1} m^{-2}$
   (4) $0.44 \times 10^{-12} C^2 N^{-1} m^{-2}$

14. 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) 67 cm
   (2) 80 cm
   (3) 33 cm
   (4) 50 cm
15. 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) 0.5 mm
(2) 1.0 mm
(3) 0.01 mm
(4) 0.25 mm

16. 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) four times
(2) one-fourth
(3) double
(4) half

17. 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:

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

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

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

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

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

\[
\begin{align*}
(1) & \quad \frac{MgL}{AL} \\
(2) & \quad \frac{MgL}{A(L_1 - L)} \\
(3) & \quad \frac{MgL_1}{AL} \\
(4) & \quad \frac{Mg(L_1 - L)}{AL}
\end{align*}
\]

21. The mean free path for a gas, with molecular diameter \( d \) and number density \( n \) can be expressed as:

\[
\begin{align*}
(1) & \quad \frac{1}{\sqrt{2} \pi d^2} \\
(2) & \quad \frac{1}{\sqrt{2} \pi d^2} \\
(3) & \quad \frac{1}{\sqrt{2} \pi d^2} \\
(4) & \quad \frac{1}{\sqrt{2} \pi d^2}
\end{align*}
\]

22. The energy equivalent of 0.5 g of a substance is:

\[
\begin{align*}
(1) & \quad 1.5 \times 10^{13} \text{J} \\
(2) & \quad 0.5 \times 10^{13} \text{J} \\
(3) & \quad 4.5 \times 10^{16} \text{J} \\
(4) & \quad 4.5 \times 10^{13} \text{J}
\end{align*}
\]

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

\[
\begin{align*}
(1) & \quad 10^3 \text{V} \\
(2) & \quad 10^4 \text{V} \\
(3) & \quad 10 \text{V} \\
(4) & \quad 10^2 \text{V}
\end{align*}
\]

24. A short electric dipole has a dipole moment of \( 16 \times 10^{-9} \text{ C m} \). 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:

\[
\begin{align*}
(1) & \quad 400 \text{ V} \\
(2) & \quad \text{zero} \\
(3) & \quad 50 \text{ V} \\
(4) & \quad 200 \text{ V}
\end{align*}
\]
25. A 40 µF capacitor is connected to a 200 V, 50 Hz ac supply. The rms value of the current in the circuit is, nearly:
   (1) 2.5 A
   (2) 25.1 A
   (3) 1.7 A
   (4) 2.05 A

26. The average thermal energy for a mono-atomic gas is:
   \( \langle \text{Thermal Energy} \rangle = \frac{5}{2} k_B T \) or \( \frac{7}{2} k_B T \) or \( \frac{1}{2} k_B T \) or \( \frac{3}{2} k_B T \)
   (1) \( \frac{5}{2} k_B T \)
   (2) \( \frac{7}{2} k_B T \)
   (3) \( \frac{1}{2} k_B T \)
   (4) \( \frac{3}{2} k_B T \)

27. 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) \( g/5 \)
   (2) \( g/10 \)
   (3) \( g \)
   (4) \( g/2 \)

28. 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) \( 7.32 \times 10^{-7} \) rad
   (2) \( 6.00 \times 10^{-7} \) rad
   (3) \( 3.66 \times 10^{-7} \) rad
   (4) \( 1.83 \times 10^{-7} \) rad
29. A cylinder contains hydrogen gas at pressure of 249 kPa and temperature 27°C.

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

(1) 0.1 kg/m\(^3\)
(2) 0.02 kg/m\(^3\)
(3) 0.5 kg/m\(^3\)
(4) 0.2 kg/m\(^3\)

30. The color code of a resistance is given below:

![Color Code](image)

The values of resistance and tolerance, respectively, are:

(1) 4.7 kΩ, 5%
(2) 470 Ω, 5%
(3) 470 kΩ, 5%
(4) 47 kΩ, 10%

31. Which of the following graph represents the variation of resistivity \( \rho \) with temperature \( T \) for copper?

![Graph Options](image)
32. 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:
   (1) isochoric
   (2) isobaric
   (3) isothermal
   (4) adiabatic

33. When a uranium isotope $^{235}_{92}$U is bombarded with a neutron, it generates $^{89}_{36}$Kr, three neutrons and:
   (1) $^{10}_{36}$Kr
   (2) $^{103}_{36}$Kr
   (3) $^{144}_{56}$Ba
   (4) $^{91}_{40}$Zr

34. A resistance wire connected in the left gap of a metre bridge balances a 10 Ω 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 Ω of the resistance wire is:
   (1) $1.5 \times 10^{-1}$ m
   (2) $1.5 \times 10^{-2}$ m
   (3) $1.0 \times 10^{-2}$ m
   (4) $1.0 \times 10^{-1}$ m

35. A charged particle having drift velocity of $7.5 \times 10^{-4}$ m s$^{-1}$ in an electric field of $3 \times 10^{-10}$ Vm$^{-1}$, has a mobility in m$^2$ V$^{-1}$s$^{-1}$ of:
   (1) $2.5 \times 10^{-6}$
   (2) $2.25 \times 10^{-15}$
   (3) $2.25 \times 10^{15}$
   (4) $2.5 \times 10^{6}$

36. 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) $24 \times 10^3$ J
   (2) $48 \times 10^3$ J
   (3) $10 \times 10^3$ J
   (4) $12 \times 10^3$ J
37. For which one of the following, Bohr model is not valid?
   (1) Deuteron atom
   (2) Singly ionised neon atom (Ne^+)
   (3) Hydrogen atom
   (4) Singly ionised helium atom (He^+)

38. 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) $1.28 \times 10^6 \text{ N/C}$
(2) $1.28 \times 10^7 \text{ N/C}$
(3) $1.28 \times 10^4 \text{ N/C}$
(4) $1.28 \times 10^5 \text{ N/C}$

39. The energy required to break one bond in DNA is $10^{-20}$ J. This value in eV is nearly:

(1) 0.06
(2) 0.006
(3) 6
(4) 0.6

40. 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) 1 N/C
(2) 5 N/C
(3) zero
(4) 0.5 N/C

41. 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) $6.28 \times 10^{-5} \text{ T}$
(2) $3.14 \times 10^{-5} \text{ T}$
(3) $6.28 \times 10^{-4} \text{ T}$
(4) $3.14 \times 10^{-4} \text{ T}$
42. 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) one-fourth
   (2) zero
   (3) doubled
   (4) four times

43. 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) 10.0 g
   (2) 20.0 g
   (3) 2.5 g
   (4) 5.0 g

44. 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) 30 N
   (2) 24 N
   (3) 48 N
   (4) 32 N

45. 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) \(-1.0\)
   (3) zero
   (4) 0.5

46. The ovary is half inferior in:
   (1) Sunflower
   (2) Plum
   (3) Brinjal
   (4) Mustard
47. Identify the wrong statement with regard to Restriction Enzymes.
   (1) They are useful in genetic engineering.
   (2) Sticky ends can be joined by using DNA ligases.
   (3) Each restriction enzyme functions by inspecting the length of a DNA sequence.
   (4) They cut the strand of DNA at palindromic sites.

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

49. In water hyacinth and water lily, pollination takes place by:
   (1) wind and water
   (2) insects and water
   (3) insects or wind
   (4) water currents only

50. 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 × 10⁹ bp, then the length of the DNA is approximately:
   (1) 2.2 meters
   (2) 2.7 meters
   (3) 2.0 meters
   (4) 2.5 meters

51. Dissolution of the synaptonemal complex occurs during:
   (1) Diplotene
   (2) Leptotene
   (3) Pachytene
   (4) Zygotene
52. 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) (iii) (iv) (ii) (i)
   (2) (iv) (i) (ii) (iii)
   (3) (ii) (i) (iv) (iii)
   (4) (iv) (iii) (ii) (i)

53. The body of the ovule is fused within the funicle at:
   (1) Nucellus
   (2) Chalaza
   (3) Hilum
   (4) Micropyle

54. In relation to Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is correct?
   (1) Gross primary productivity and Net primary productivity are one and same.
   (2) There is no relationship between Gross primary productivity and Net primary productivity.
   (3) Gross primary productivity is always less than Net primary productivity.
   (4) Gross primary productivity is always more than Net primary productivity.

55. 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.

Select the correct option:
   (a) (b), (c) and (d)
   (2) only (d)
   (3) only (a)
   (4) (a) and (c)
56. Identify the correct statement with reference to human digestive system.
   (1) Ileum is a highly coiled part.
   (2) Vermiform appendix arises from duodenum.
   (3) Ileum opens into small intestine.
   (4) Serosa is the innermost layer of the alimentary canal.

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

58. 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.

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

60. Goblet cells of alimentary canal are modified from:
   (1) Chondrocytes
   (2) Compound epithelial cells
   (3) Squamous epithelial cells
   (4) Columnar epithelial cells
61. Which of the following is **not** an attribute of a population?
   (1) Mortality
   (2) Species interaction
   (3) Sex ratio
   (4) Natality

62. Embryological support for evolution was disapproved by:
   (1) Charles Darwin
   (2) Oparin
   (3) Karl Ernst von Baer
   (4) Alfred Wallace

63. Which one of the following is the most abundant protein in the animals?
   (1) Lectin
   (2) Insulin
   (3) Haemoglobin
   (4) Collagen

64. 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) Eosinophils</td>
<td>(i) Immune response</td>
</tr>
<tr>
<td>(b) Basophils</td>
<td>(ii) Phagocytosis</td>
</tr>
<tr>
<td>(c) Neutrophils</td>
<td>(iii) Release histaminase, destructive enzymes</td>
</tr>
<tr>
<td>(d) Lymphocytes</td>
<td>(iv) Release granules containing histamine</td>
</tr>
</tbody>
</table>

65. Which of the following hormone levels will cause release of ovum (ovulation) from the graffian follicle?
   (1) Low concentration of LH
   (2) Low concentration of FSH
   (3) High concentration of Estrogen
   (4) High concentration of Progesterone
66. The sequence that controls the copy number of the linked DNA in the vector, is termed :
(1) Palindromic sequence
(2) Recognition site
(3) Selectable marker
(4) Ori site

67. The plant parts which consist of two generations - one within the other :
(a) Pollen grains inside the anther
(b) Germinated pollen grain with two male gametes
(c) Seed inside the fruit
(d) Embryo sac inside the ovule
(1) (c) and (d)
(2) (a) and (d)
(3) (a) only
(4) (a), (b) and (c)

68. 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 niger</td>
<td>(iv) Blood cholesterol lowering agent</td>
</tr>
</tbody>
</table>

66. The roots that originate from the base of the stem are :
(1) Prop roots
(2) Lateral roots
(3) Fibrous roots
(4) Primary roots
70. Identify the wrong statement with reference to the gene 'I' that controls ABO blood groups.

(1) When I^A and I^B are present together, they express same type of sugar.
(2) Allele 'i' does not produce any sugar.
(3) The gene (I) has three alleles.
(4) A person will have only two of the three alleles.

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

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

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

(1) Release of Green House gases
(2) Disposal of e-wastes
(3) Transport of Genetically modified organisms from one country to another
(4) Emission of ozone depleting substances

73. Meiotic division of the secondary oocyte is completed:

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

74. By which method was a new breed ‘Hisardale’ of sheep formed by using Bikaneri ewes and Marino rams?

(1) Cross breeding
(2) Inbreeding
(3) Out crossing
(4) Mutational breeding
75. If the head of cockroach is removed, it may live for few days because :

(1) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.

(2) the head holds a 1/3rd of a nervous system while the rest is situated along the dorsal part of its body.

(3) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.

(4) the cockroach does not have nervous system.

76. Identify the **incorrect** statement.

(1) Sapwood is the innermost secondary xylem and is lighter in colour.

(2) Due to deposition of tannins, resins, oils etc., heart wood is dark in colour.

(3) Heart wood does not conduct water but gives mechanical support.

(4) Sapwood is involved in conduction of water and minerals from root to leaf.

77. Select the option including all sexually transmitted diseases.

(1) AIDS, Malaria, Filaria

(2) Cancer, AIDS, Syphilis

(3) Gonorrhoea, Syphilis, Genital herpes

(4) Gonorrhoea, Malaria, Genital herpes

78. Identify the **wrong** statement with reference to immunity.

(1) Active immunity is quick and gives full response.

(2) Foetus receives some antibodies from mother, it is an example for passive immunity.

(3) When exposed to antigen (living or dead) antibodies are produced in the host’s body. It is called “Active immunity”.

(4) When ready-made antibodies are directly given, it is called “Passive immunity”. 
79. निम्न संबंधों 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) बीटी कपास</td>
<td>(i) जीन विकिस्ता</td>
</tr>
<tr>
<td>(b) एडवर्डिनीन डिएमोनेज</td>
<td>(ii) कोशिकीय सुरक्षा की कमी</td>
</tr>
<tr>
<td>(c) आर.ए.ए.आई</td>
<td>(iii) HIV संक्रमण का पता लगाना</td>
</tr>
<tr>
<td>(d) पी.सी.आर.</td>
<td>(iv) बैक्टीरिया शुरूविजिनिसस</td>
</tr>
</tbody>
</table>

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

80. निम्नलिखित में से कौन सा कथन सही है?
(1) एडवर्डिनीन तीन H-बंधों के द्वारा थायमीन के साथ युग्म बनाता है।
(2) एडवर्डिनीन, थायमीन के साथ युग्म नहीं बनाता।
(3) एडवर्डिनीन दो H-बंधों के द्वारा थायमीन के साथ युग्म बनाता है।
(4) एडवर्डिनीन एक H-बंध के द्वारा थायमीन के साथ युग्म बनाता है।

81. राष्ट्र में के अनुसार, विश्व में जाति विभिन्नता लगभग कितनी है?
(1) 50 मिलियन
(2) 7 मिलियन
(3) 1.5 मिलियन
(4) 20 मिलियन

82. द्वितीयक उपयोग, जैसे कि निकोटीन, स्ट्राइक्सनीन और कैफीन को पीथों के द्वारा अपने लिए कैसे उपयोग किया जाता है?
(1) रक्षा पर असर
(2) प्रजनन पर प्रभाव
(3) पोषण में उपयोग
(4) वृद्धि पर प्रभाव
83. Which of the following pairs is of unicellular algae?
(1) Anabaena and Volvox
(2) Chlorella and Spirulina
(3) Laminaria and Sargassum
(4) Gelidium and Gracilaria

84. The enzyme enterokinase helps in conversion of:
(1) caseinogen into casein
(2) pepsinogen into pepsin
(3) protein into polypeptides
(4) trypsinogen into trypsin

85. 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) 6-15 pairs of gill slits</td>
<td>(i) Trygon</td>
</tr>
<tr>
<td>(b) Heterocercal caudal fin</td>
<td>(ii) Cyclostomes</td>
</tr>
<tr>
<td>(c) Air Bladder</td>
<td>(iii) Chondrichthyes</td>
</tr>
<tr>
<td>(d) Poison sting</td>
<td>(iv) Osteichthyes</td>
</tr>
</tbody>
</table>

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

86. 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) Imbibition
(2) Plasmolysis
(3) Transpiration
(4) Root pressure

87. Which of the following is put into Anaerobic sludge digester for further sewage treatment?
(1) Effluents of primary treatment
(2) Activated sludge
(3) Primary sludge
(4) Floating debris
88. निम्न संबंधों 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) प्लाबी पसलिमीं</td>
<td>(i) दूसरी एवं सातवी पसलि के बीच स्थित होती हैं</td>
</tr>
<tr>
<td>(b) एक्रोमियन</td>
<td>(ii) ह्युमरस का शीर्ष</td>
</tr>
<tr>
<td>(c) स्कैपुला</td>
<td>(iii) क्लेबिकल</td>
</tr>
<tr>
<td>(d) ग्लेनोइड गुहा</td>
<td>(iv) उपोन्तिक से नहीं जुड़ती</td>
</tr>
</tbody>
</table>

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

89. सही कथन का चयन करो।

(1) इंसूलिन अग्नि अश्वी कोशिकाओं एवं एडिपोसाइट्स पर क्रिया करता है। 
(2) इंसूलिन हाइपरराइडसिमिया से संबंधित है। 
(3) ग्लूकोकोर्टिकोइड्स ग्लूकोनियोजिनेसि्स को प्रेरित करते हैं। 
(4) ग्लूकॉजैन हाइपरराइडसिमिया से संबंधित है।

90. निम्न में मृत की कोइनी अवस्था डायाबिटीज़ मेलिटस की ओर संकेत करती है?

(1) कोटाकूरिया एवं ग्लाइकोसूरिया 
(2) रीनल कैल्कुली एवं हाइपरराइडसिमिया 
(3) यूरेमिया एवं कोटाकूरिया 
(4) यूरेमिया एवं रीनल कैल्कुली 

91. ब्लाइडीं के बिषय में, निम्नलिखित में से कौन सा कथन सही है?

(1) उनमें प्रोटीन आवरण के साथ ड्र.एन.ए. होता है। 
(2) उनमें प्रोटीन आवरण के बिना स्वतंत्र ड्र.एन.ए. होता है। 
(3) उनमें आर.एन.ए. के साथ प्रोटीन आवरण होता है। 
(4) उनमें प्रोटीन आवरण के बिना स्वतंत्र आर.एन.ए. होता है।

98. 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) 
(1) (iii) (ii) (iv) (i) 
(2) (iv) (iii) (i) (ii) 
(3) (ii) (iv) (i) (iii) 
(4) (i) (iii) (ii) (iv) 

89. Select the correct statement.

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

90. Presence of which of the following conditions in urine are indicative of Diabetes Mellitus?

(1) Ketonuria and Glycosuria 
(2) Renal calculi and Hyperglycaemia 
(3) Uremia and Ketonuria 
(4) Uremia and Renal Calculi 

91. Which of the following is correct about viroids?

(1) They have DNA with protein coat. 
(2) They have free DNA without protein coat. 
(3) They have RNA with protein coat. 
(4) They have free RNA without protein coat.
92. How many true breeding pea plant varieties did Mendel select as pairs, which were similar except in one character with contrasting traits?

(1) 14
(2) 8
(3) 4
(4) 2

93. Which of the following regions of the globe exhibits highest species diversity?

(1) Himalayas
(2) Amazon forests
(3) Western Ghats of India
(4) Madagascar

94. 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) 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 glands</td>
<td>(iii) Layer of the ovum layers</td>
</tr>
<tr>
<td>(d) Leydig cells</td>
<td>(iv) Lubrication of the Penis</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Column - I</th>
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</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) (b) (c) (d)
(1) (iv) (iii) (ii) (i)
(2) (i) (ii) (iii) (iv)
(3) (iii) (ii) (iv) (i)
(4) (ii) (iii) (i) (iv)
96. Flippers of Penguins and Dolphins are examples of:
   (1) Industrial melanism
   (2) Natural selection
   (3) Adaptive radiation
   (4) Convergent evolution

97. The number of substrate level phosphorylations in one turn of citric acid cycle is:
   (1) Two
   (2) Three
   (3) Zero
   (4) One

98. Which of the following statements is not correct?
   (1) The functional insulin has A and B chains linked together by hydrogen bonds.
   (2) Genetically engineered insulin is produced in E.Coli.
   (3) In man insulin is synthesised as a proinsulin.
   (4) The proinsulin has an extra peptide called C-peptide.

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

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

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<td>(4)</td>
<td>(iii)</td>
<td>(i)</td>
<td>(iv)</td>
</tr>
</tbody>
</table>
100. कुछ विभाजित हो रही कोशिकाओं कोशिका चक्र से बाहर निकल जाती हैं और काफी विनियमित अवस्था में प्रवेश कर जाती हैं। इसे शांत अवस्था \((G_0)\) कहा जाता है। यह प्रक्रिया किसके अंत में होती है?
(1) \(S\) अवस्था
(2) \(G_2\) अवस्था
(3) \(M\) अवस्था
(4) \(G_1\) अवस्था

101. बृद्धि की प्रक्रिया अधिकतम किस दौरान होती है?
(1) जीर्णता
(2) प्रसुप्ति
(3) लोग अवस्था
(4) परमाणु अवस्था

102. मानक ई.सी.जी. का \(K_u\) आर.एस. सम्मिलित दर्शाता है:
(1) निलयों का विगर्हण
(2) निलयों का पुनर्गर्हण
(3) आर्थिकों का पुनर्गर्हण
(4) आर्थिकों का विगर्हण

103. बट कपास की किसम जो \(Bacillus\) \(thuringiensis\) के विष जीन को समाविष्ट करके बनाई गयी है, प्रतिरोधी है?
(1) पादप तुलकृति से
(2) कीट परभक्ति से
(3) कीट पौधकी से
(4) कृतकृत रोगों से

104. निम्न में किस तकनीक की सहायता से ऐसी दिल्लों जो परभक्ति नहीं कर सकती, में भूख को स्थानांतरित किया जाता है?
(1) ICSI एवं ZIFT
(2) GIFT एवं ICSI
(3) ZIFT एवं IUT
(4) GIFT एवं ZIFT

105. फ्लोरिडियन मैड की संरचना किसके समान होती है?
(1) मैनीफेल और एक्लिइ
(2) लैमिनरेशन और सेल्युलोज
(3) मैड और सेल्युलोज
(4) एमाइलोप्रोबटीन और ग्लाइकोजन

100. कुछ विभाजित हो रही कोशिकाओं कोशिका चक्र से बाहर निकल जाती हैं और काफी विनियमित अवस्था में प्रवेश कर जाती हैं। इसे शांत अवस्था \((G_0)\) कहा जाता है। यह प्रक्रिया किसके अंत में होती है?
(1) \(S\) अवस्था
(2) \(G_2\) अवस्था
(3) \(M\) अवस्था
(4) \(G_1\) अवस्था

101. The process of growth is maximum during:
(1) Senescence
(2) Dormancy
(3) Log phase
(4) Lag phase

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

103. Bt cotton variety that was developed by the introduction of toxin gene of \(Bacillus\) \(thuringiensis\) (Bt) is resistant to:
(1) Plant nematodes
(2) Insect predators
(3) Insect pests
(4) Fungal diseases

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

105. Floridean starch has structure similar to:
(1) Mannitol and algin
(2) Laminarin and cellulose
(3) Starch and cellulose
(4) Amylopectin and glycogen
106. Name the plant growth regulator which upon spraying on sugarcane crop, increases the length of stem, thus increasing the yield of sugarcane crop.

(1) Ethylene  
(2) Abscisic acid  
(3) Cytokinin  
(4) Gibberellin

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) Gregarious, polyphagous</td>
<td>Asterias</td>
</tr>
<tr>
<td>(b) Adult with radial symmetry</td>
<td>Scorpion</td>
</tr>
<tr>
<td>(c) Book lungs</td>
<td>Ctenoplana</td>
</tr>
<tr>
<td>(d) Bioluminescence</td>
<td>Locusta</td>
</tr>
</tbody>
</table>

108. 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) (a) and (b)  
(2) (b) and (c)  
(3) (d) and (c)  
(4) (c) and (a)

109. The first phase of translation is:

(1) Aminoacylation of tRNA  
(2) Recognition of an anti-codon  
(3) Binding of mRNA to ribosome  
(4) Recognition of DNA molecule
110. Identify the basic amino acid from the following.
   (1) Lysine
   (2) Valine
   (3) Tyrosine
   (4) Glutamic Acid

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

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

113. In light reaction, plastoquinone facilitates the transfer of electrons from:
   (1) PS-I to NADP+
   (2) PS-I to ATP synthase
   (3) PS-II to Cytb6f complex
   (4) Cytb6f complex to PS-I

114. The oxygenation activity of RuBisCo enzyme in photorespiration leads to the formation of:
   (1) 1 molecule of 6-C compound
   (2) 1 molecule of 4-C compound and 1 molecule of 2-C compound
   (3) 2 molecules of 3-C compound
   (4) 1 molecule of 3-C compound

115. Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells?
   (1) Golgi bodies
   (2) Polysomes
   (3) Endoplasmic reticulum
   (4) Peroxisomes
116. निम्नलिखित को सुमारित कीजिए:
(a) उदारक क्रिया का निरोधक (i) रिसिन
(b) पेटाइड बंध धारक (ii) मैलोनेट
(c) कक्षों में कोशिका भिंति (iii) काइटिन
(d) द्वितीयक उपाध्याय (iv) कोलेजन
निम्नलिखित में से सही विकल्प चुनिए:
(a)  (b)  (c)  (d)
(1) (iii)  (iv)  (i)  (ii)
(2) (ii)  (iii)  (i)  (iv)
(3) (i)  (iv)  (iii)  (i)
(4) (iii)  (i)  (iv)  (ii)

117. उन पदार्थों को पहचानिए, जिनकी संरचनाओं में क्रमशः
ऱ्लाइकोसाइड बंध और पेटाइड बंध पाये जाते हैं:
(1) सेल्लुलोज, लेसिसिन
(2) इंसुलिन, इंसुलिन
(3) काइटिन, कोलेस्टरॉल
(4) फिलसोरोल, ट्रिंग्सिन

118. वंशानित के गुणसूत्र सिद्धान्त का प्रायोगिक प्रयास किसने
किया था?
(1) बोवेरी
(2) मॉर्गन
(3) मेंडल
(4) स्टॉन

119. इंको आर 1 द्वारा पहचाने जाने वाला पैलिंड्रोमिक क्रम है:
(1) 5' - CTTAAG - 3'
   3' - GAATTC - 5'
(2) 5' - GGATCC - 3'
   3' - CCTAGG - 5'
(3) 5' - GAATTC - 3'
   3' - CTTAAG - 5'
(4) 5' - GGAACC - 3'
   3' - CCTTGG - 5'

120. अनुसंधान के समय डी.एन.ए. की कुंडली को खोलने में क्रीडा
एंजाइम मदद करता है?
(1) डी.एन.ए. पैलीमेज
(2) आर.एन.ए. पैलीमेज
(3) डी.एन.ए. लाइफेज
(4) डी.एन.ए. हैलीकेज

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

117. Identify the substances having glycosidic bond and
peptide bond, respectively in their structure:
(1) Cellulose, lecithin
(2) Inulin, insulin
(3) Chitin, cholesterol
(4) Glycerol, trypsin

118. Experimental verification of the chromosomal
theory of inheritance was done by:
(1) Boveri
(2) Morgan
(3) Mendel
(4) Sutton

119. The specific palindromic sequence which is
recognized by EcoRI is:
(1) 5' - CTTAAG - 3'
   3' - GAATTC - 5'
(2) 5' - GGATCC - 3'
   3' - CCTAGG - 5'
(3) 5' - GAATTC - 3'
   3' - CTTAAG - 5'
(4) 5' - GGAACC - 3'
   3' - CCTTGG - 5'

120. Name the enzyme that facilitates opening of DNA
helix during transcription.
(1) DNA polymerase
(2) RNA polymerase
(3) DNA ligase
(4) DNA helicase
121. सही मिलान का चयन करो।
(1) दात्र कोशिका अरकता - अलिंग क्रोमोसोम अपभ्रात्वी लक्षण, क्रोमोसोम-11
(2) बेलेसिमीया - X संलग्न
(3) हीपोफोलिया - Y संलग्न
(4) पेनिलकोटोनिया - अलिंग क्रोमोसोम प्रभावी लक्षण

122. एस.एल. मिलर ने अपने प्रयोग में एक बंद फ्लास्क में किसका मिश्रण कर ऐमिनो अम्ल उत्पन्न किये?
(1) 600° पर CH₄, H₂, NH₃ और जल वाष्प
(2) 600° पर CH₃, H₂, NH₃ और जल वाष्प
(3) 800° पर CH₄, H₂, NH₃ और जल वाष्प
(4) 800° पर CH₃, H₂, NH₄ और जल वाष्प

123. निम्न तंत्रों 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) पीपुल ग्रंथि</td>
<td>(i) प्रेवस रोग</td>
</tr>
<tr>
<td>(b) बायराइड ग्रंथि</td>
<td>(ii) डायाबिटीज़ मेलिटस</td>
</tr>
<tr>
<td>(c) आवृक ग्रंथि</td>
<td>(iii) डायाबिटीज़ इंस्पीक्सियस</td>
</tr>
<tr>
<td>(d) अग्नियास</td>
<td>(iv) एडिसन रोग</td>
</tr>
</tbody>
</table>

124. सूक्ष्मकुंजों के भुज बाइड़र वाली पत्ताका पाठी पानी जाते हैं?
(1) वृक्काकूण की समीपस्थ संविलित नलिका में
(2) तृटोस्क्नाय नलिका में
(3) आंत्र के आस्ट्रा में
(4) लार ग्रंथि के वाहिका में

125. स्ट्रोबेलिआई या शांकु किससे पाये जाते हैं?
(1) मांगेनिओमा
(2) इटेलिशनिमा
(3) साल्विनिया
(4) प्टेरिस

121. Select the correct match.
(1) Sickle cell anaemia - Autosomal recessive trait, chromosome-11
(2) Thalassemia - X linked
(3) Haemophilia - Y linked
(4) Phenylketonuria - Autosomal dominant trait

122. From his experiments, S.L. Miller produced amino acids by mixing the following in a closed flask:
(1) CH₄, H₂, NH₃ and water vapor at 600°C
(2) CH₃, H₂, NH₃ and water vapor at 600°C
(3) CH₄, H₂, NH₃ and water vapor at 800°C
(4) CH₃, H₂, NH₄ and water vapor at 800°C

123. 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) 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>

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

125. Strobili or cones are found in :
(1) Marchantia
(2) Equisetum
(3) Salvinia
(4) Pteris
126. अंटार्क्टिक क्षेत्र में हिम–अंधता किस कारण होती है?

(1) हिम से प्रकाश का उच्च परावर्तन
(2) अवकाश किरणों द्वारा रेटीना में क्षति
(3) निम्न ताप द्वारा आँख में तब के जनने के कारण
(4) UV-B विकरण की उच्च मात्रा के कारण कौन्सिया का लोप

127. निम्न रोगों को उनके पैदा करने वाले जीवों के साथ मिलान कर सही विकल्प का चयन करो।

<table>
<thead>
<tr>
<th>स्तंभ - I</th>
<th>स्तंभ - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) टाइफ्साउंड</td>
<td>(i) वुचरिया</td>
</tr>
<tr>
<td>(b) मुमुनिया</td>
<td>(ii) प्लास्मोडियम</td>
</tr>
<tr>
<td>(c) फाइलसियोस</td>
<td>(iii) ताल्मेनेला</td>
</tr>
<tr>
<td>(d) मल्लरिया</td>
<td>(iv) होमोचिलस</td>
</tr>
</tbody>
</table>

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

128. निम्नलिखित में से सही प्रमाण को चुनिए:

(1) न्यूक्लिसरिज - डी.एच.ए. के दो रूढ़िक को पृथक करता है
(2) एक्सन्यूक्लिसरिज - डी.एच.ए. में विभाजन स्थान पर काट लगाता है
(3) लाइज़ेज - दो डी.एच.ए. के अंगुलों को जोड़ता है
(4) पॉलिमरेज - डी.एच.ए. के खंडों में तोड़ता है

129. अंतर्भित कायाओं के विषय में निम्नलिखित में से कौन सा कथन गलत है?

(1) ये कोशिकाक्रम में स्वतंत्र रूप में होते हैं।
(2) ये कोशिकाक्रम में मिश्रित पदार्थ को व्यक्त करते हैं।
(3) ये किसी फिल्ली से फिरे नहीं होते।
(4) ये क्रांति कणों के अंतर्गत में शामिल होते हैं।

126. Snow-blindness in Antarctic region is due to:

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

127. Match the following diseases with the causative organism and select the correct option.

<table>
<thead>
<tr>
<th>Column - I</th>
<th>Column - 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) (ii) (i) (iii) (iv)
(2) (iv) (i) (ii) (iii)
(3) (i) (iii) (ii) (iv)
(4) (iii) (iv) (i) (ii)

128. Choose the correct pair from the following:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| (1) Nucleases | Separate the two strands of DNA
| (2) Exonucleases | Make cuts at specific positions within DNA
| (3) Ligases | Join the two DNA molecules
| (4) Polymerases | Break the DNA into fragments

129. Which of the following statements about inclusion bodies is incorrect?

(1) They lie free in the cytoplasm.
(2) These represent reserve material in cytoplasm.
(3) They are not bound by any membrane.
(4) These are involved in ingestion of food particles.
130. 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) (a), (b) and (d)
(2) only (d)
(3) (a) and (b)
(4) (c) and (d)

131. Ray florets have:
(1) Hypogynous ovary
(2) Half inferior ovary
(3) Inferior ovary
(4) Superior ovary

132. Which of the following is not an inhibitory substance governing seed dormancy?
(1) Phenolic acid
(2) Para-ascorbic acid
(3) Gibberellic acid
(4) Abscisic acid
134. 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) (ii) (iv) (iii)
(2) (ii) (iv) (iii) (i)
(3) (iii) (iv) (i) (ii)
(4) (iv) (iii) (ii) (i)

135. In gel electrophoresis, separated DNA fragments can be visualized with the help of:

(1) Acetocarmine in UV radiation
(2) Ethidium bromide in infrared radiation
(3) Acetocarmine in bright blue light
(4) Ethidium bromide in UV radiation

136. Which of the following is a natural polymer?

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

137. On electrolysis of dil. sulphuric acid using Platinum (Pt) electrode, the product obtained at anode will be:

(1) H₂S gas
(2) SO₂ gas
(3) Hydrogen gas
(4) Oxygen gas

138. An element has a body centered cubic (bcc) structure with a cell edge of 288 pm. The atomic radius is:

(1) \( \frac{4}{\sqrt{3}} \times 288 \) pm
(2) \( \frac{4}{\sqrt{2}} \times 288 \) pm
(3) \( \frac{\sqrt{3}}{4} \times 288 \) pm
(4) \( \frac{\sqrt{2}}{4} \times 288 \) pm
139. 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 \( w > 0 \)

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

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

141. A mixture of \( N_2 \) and \( Ar \) gases in a cylinder contains 7 g of \( N_2 \) 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 \( N_2 \) is:

[Use atomic masses (in g mol\(^{-1}\)) : \( N = 14, Ar = 40 \)]

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

142. 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) (b) and (c) only
(2) (c) and (d) only
(3) (a), (b) and (c) only
(4) (a) and (c) only
143. अनिसोल HI के साथ विलंबन द्वारा देता है:

(1) \( \text{OH} \) + \( \text{C}_2\text{H}_5\text{I} \)

(2) \( \text{OH} \) + \( \text{C}_2\text{H}_5\text{OH} \)

(3) \( \text{OH} \) + \( \text{CH}_3\text{I} \)

(4) \( \text{OH} \) + \( \text{CH}_3\text{OH} \)

144. वह भिंत्रण जो राउल्स नियम से धनात्मक विचलन प्रदर्शित करता है, है जो:

1. एथ्यलेन + क्रोरोफार्म
2. क्रोरोफार्म + ब्रोमोफार्म
3. एथ्यलेन + एथिलेन
4. एथेन + टाल्कुन

145. निम्नलिखित में से, समन्वय थोकों को बनाने के लिए सल्फामिनों की बढ़ती क्षेत्र प्रवचन का कोण-सा सही हौ है?

(1) \( \text{F}^- < \text{SCN}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^- \)

(2) \( \text{CN}^- < \text{C}_2\text{O}_4^{2-} < \text{SCN}^- < \text{F}^- \)

(3) \( \text{SCN}^- < \text{F}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^- \)

(4) \( \text{SCN}^- < \text{F}^- < \text{CN}^- < \text{C}_2\text{O}_4^{2-} \)

146. निम्नलिखित में से किसम के परमाणुओं की संख्या अधिकतम होगी?

(1) \( \text{O}_2\text{(g)} \) का 1 g [O का परमाणु द्रव्यमान = 16]

(2) \( \text{Li(s)} \) का 1 g [Li का परमाणु द्रव्यमान = 7]

(3) \( \text{Ag(s)} \) का 1 g [Ag का परमाणु द्रव्यमान = 108]

(4) \( \text{Mg(s)} \) का 1 g [Mg का परमाणु द्रव्यमान = 24]

143. अनिसोल HI के साथ विलंबन द्वारा देता है:

(1) \( \text{OH} \) + \( \text{C}_2\text{H}_5\text{I} \)

(2) \( \text{OH} \) + \( \text{C}_2\text{H}_5\text{OH} \)

(3) \( \text{OH} \) + \( \text{CH}_3\text{I} \)

(4) \( \text{OH} \) + \( \text{CH}_3\text{OH} \)

144. The mixture which shows positive deviation from Raoult’s law is:

1. Acetone + Chloroform
2. Chloroethane + Bromoethane
3. Ethanol + Acetone
4. Benzene + Toluene

145. Which of the following is the correct order of increasing field strength of ligands to form coordination compounds?

(1) \( \text{F}^- < \text{SCN}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^- \)

(2) \( \text{CN}^- < \text{C}_2\text{O}_4^{2-} < \text{SCN}^- < \text{F}^- \)

(3) \( \text{SCN}^- < \text{F}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^- \)

(4) \( \text{SCN}^- < \text{F}^- < \text{CN}^- < \text{C}_2\text{O}_4^{2-} \)

146. Which one of the followings has maximum number of atoms?

(1) 1 g of \( \text{O}_2\text{(g)} \) [Atomic mass of O = 16]

(2) 1 g of \( \text{Li(s)} \) [Atomic mass of Li = 7]

(3) 1 g of \( \text{Ag(s)} \) [Atomic mass of Ag = 108]

(4) 1 g of \( \text{Mg(s)} \) [Atomic mass of Mg = 24]
147. Which of the following alkane cannot be made in good yield by Wurtz reaction?
(1) n-Heptane
(2) n-Butane
(3) n-Hexane
(4) 2,3-Dimethylbutane

148. Which of the following is not correct about carbon monoxide?
(1) The carboxyhaemoglobin (haemoglobin bound to CO) is less stable than oxyhaemoglobin.
(2) It is produced due to incomplete combustion.
(3) It forms carboxyhaemoglobin.
(4) It reduces oxygen carrying ability of blood.

149. For the reaction, \(2\text{Cl(g)} \rightarrow \text{Cl}_2(\text{g})\), the correct option is:
(1) \(\Delta_r H < 0\) and \(\Delta_r S > 0\)
(2) \(\Delta_r H < 0\) and \(\Delta_r S < 0\)
(3) \(\Delta_r H > 0\) and \(\Delta_r S > 0\)
(4) \(\Delta_r H > 0\) and \(\Delta_r S < 0\)

150. Match the following and identify the correct option.
(a) CO(g) + H\(_2\)(g) (i) Mg(HCO\(_3\))\(_2\) + Ca(HCO\(_3\))\(_2\)
(b) जल की अर्थाती (ii) एक इलेक्ट्रॉन न्यून हाइड्राइड
(c) B\(_2\)H\(_6\) (iii) संश्लेषण गैस
(d) H\(_2\)O\(_2\) (iv) असमसाटी संरचना

151. Urea reacts with water to form A which will decompose to form B. B when passed through Cu\(^{2+}\) (aq), deep blue colour solution C is formed. What is the formula of C from the following?
(1) Cu(OH)\(_2\)
(2) CuCO\(_3\)Cu(OH)\(_2\)
(3) CuSO\(_4\)
(4) [Cu(NH\(_3\))\(_4\)]\(^{2+}\)
152. Hydrolysis of sucrose is given by the following reaction.

\[
\text{Sucrose} + H_2O \rightleftharpoons \text{Glucose} + \text{Fructose}
\]

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

\[
\begin{align*}
(1) & \quad 8.314 \text{ J mol}^{-1} \text{K}^{-1} \times 300 \text{ K} \times \ln(3 \times 10^{13}) \\
(2) & \quad -8.314 \text{ J mol}^{-1} \text{K}^{-1} \times 300 \text{ K} \times \ln(4 \times 10^{13}) \\
(3) & \quad -8.314 \text{ J mol}^{-1} \text{K}^{-1} \times 300 \text{ K} \times \ln(2 \times 10^{13}) \\
(4) & \quad 8.314 \text{ J mol}^{-1} \text{K}^{-1} \times 300 \text{ K} \times \ln(2 \times 10^{13})
\end{align*}
\]

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

\[
\begin{align*}
(1) & \quad 5.92 \text{ BM} \\
(2) & \quad 2.84 \text{ BM} \\
(3) & \quad 3.87 \text{ BM} \\
(4) & \quad 4.90 \text{ BM}
\end{align*}
\]

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

\[
\begin{align*}
(1) & \quad \text{Stability of the colloidal particles} \\
(2) & \quad \text{Size of the colloidal particles} \\
(3) & \quad \text{Viscosity} \\
(4) & \quad \text{Solubility}
\end{align*}
\]

155. Which of the following is a cationic detergent?

\[
\begin{align*}
(1) & \quad \text{Cetyltrimethyl ammonium bromide} \\
(2) & \quad \text{Sodium dodecylbenzene sulphonate} \\
(3) & \quad \text{Sodium lauryl sulphate} \\
(4) & \quad \text{Sodium stearate}
\end{align*}
\]

156. Find out the solubility of \(\text{Ni(OH)}_2\) in 0.1 M NaOH. Given that the ionic product of \(\text{Ni(OH)}_2\) is \(2 \times 10^{-15}\).

\[
\begin{align*}
(1) & \quad 1 \times 10^{-13} \text{ M} \\
(2) & \quad 1 \times 10^8 \text{ M} \\
(3) & \quad 2 \times 10^{-13} \text{ M} \\
(4) & \quad 2 \times 10^{-8} \text{ M}
\end{align*}
\]
157. Identify compound X in the following sequence of reactions:

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

(1) \( \text{CHCl}_2 \)

(2) \( \text{CCl}_3 \)

(3) \( \text{Cl} \)

(4) \( \text{CH}_2\text{Cl} \)

158. 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) Calcium
(2) Potassium
(3) Iron
(4) Copper

159. An increase in the concentration of the reactants of a reaction leads to change in:

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

161. The number of Faradays (F) required to produce 20 g of calcium from molten CaCl$_2$ (Atomic mass of Ca = 40 g mol$^{-1}$) is:
(1) 3
(2) 4
(3) 1
(4) 2

162. Identify the correct statement from the following:
(1) Vapour phase refining is carried out for Nickel by Van Arkel method.
(2) Pig iron can be moulded into a variety of shapes.
(3) Wrought iron is impure iron with 4% carbon.
(4) Blister copper has blistered appearance due to evolution of CO$_2$.

163. Identify a molecule which does not exist.
(1) C$_2$
(2) O$_2$
(3) He$_2$
(4) Li$_2$

164. A tertiary butyl carbocation is more stable than a secondary butyl carbocation because of which of the following?
(1) $-R$ effect of $-CH_3$ groups
(2) Hyperconjugation
(3) $-I$ effect of $-CH_3$ groups
(4) $+R$ effect of $-CH_3$ groups

165. HCl was passed through a solution of CaCl$_2$, MgCl$_2$ and NaCl. Which of the following compound(s) crystallise(s)?
(1) Only MgCl$_2$
(2) NaCl, MgCl$_2$ and CaCl$_2$
(3) Both MgCl$_2$ and CaCl$_2$
(4) Only NaCl
166. **Which of the following amine will give the carbylamine test?**

<table>
<thead>
<tr>
<th>Number</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td><img src="image1" alt="Structure" /></td>
</tr>
<tr>
<td>(2)</td>
<td><img src="image2" alt="Structure" /></td>
</tr>
<tr>
<td>(3)</td>
<td><img src="image3" alt="Structure" /></td>
</tr>
<tr>
<td>(4)</td>
<td><img src="image4" alt="Structure" /></td>
</tr>
</tbody>
</table>

- **N(CH₃)₂**

167. **Identify the incorrect match.**

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

- **Name**
  - (a) Unnilunium
  - (b) Unniltrium
  - (c) Unnilhexium
  - (d) Unununium

- **IUPAC Official Name**
  - (i) Mendelevium
  - (ii) Lawrencium
  - (iii) Seaborgium
  - (iv) Darmstadtium

168. **Reaction between acetone and methylmagnesium chloride followed by hydrolysis will give:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Tert. butyl alcohol</td>
</tr>
<tr>
<td>(2)</td>
<td>Isobutyl alcohol</td>
</tr>
<tr>
<td>(3)</td>
<td>Isopropyl alcohol</td>
</tr>
<tr>
<td>(4)</td>
<td>Sec. butyl alcohol</td>
</tr>
</tbody>
</table>

- **Compound**
  - (1) Tert. butyl alcohol
  - (2) Isobutyl alcohol
  - (3) Isopropyl alcohol
  - (4) Sec. butyl alcohol
169. Sucrose on hydrolysis gives:

1. α-D-Glucose + β-D-Fructose
2. α-D-Fructose + β-D-Fructose
3. β-D-Glucose + α-D-Fructose
4. α-D-Glucose + β-D-Fructose

170. An alkene on ozonolysis gives methanal as one of the products. Its structure is:

CH₂ = CH = CH₂

(1)

CH₂CH₂CH₃

(2)

CH = CH – CH₃

(3)

CH₂ – CH₂ – CH₃

(4)

171. Identify the incorrect statement.

1. Interstitial compounds are those that are formed when small atoms like H, C or N are trapped inside the crystal lattices of metals.
2. The oxidation states of chromium in CrO₄²⁻ and Cr₂O₇²⁻ are not the same.
3. Cr²⁺(d⁴) is a stronger reducing agent than Fe²⁺(d⁶) in water.
4. 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.
172. Which of the following is a basic amino acid?
(1) Tyrosine
(2) Lysine
(3) Serine
(4) Alanine

173. Which of the following oxoacid of sulphur has
−O−O− linkage?
(1) $H_2S_2O_8$, peroxodisulphuric acid
(2) $H_2S_2O_7$, pyrosulphuric acid
(3) $H_2SO_3$, sulphurous acid
(4) $H_2SO_4$, sulphuric acid

174. Elimination reaction of 2-Bromo-pentane to form
pent-2-ene is:
(a) $\beta$-Elimination reaction
(b) Follows Zaitsev rule
(c) Dehydrohalogenation reaction
(d) Dehydration reaction
(1) (b), (c), (d)
(2) (a), (b), (d)
(3) (a), (b), (c)
(4) (a), (c), (d)

175. Match the following:

<table>
<thead>
<tr>
<th>Oxide</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>(i) Basic</td>
</tr>
<tr>
<td>BaO</td>
<td>(ii) Neutral</td>
</tr>
<tr>
<td>$Al_2O_3$</td>
<td>(iii) Acidic</td>
</tr>
<tr>
<td>$Cl_2O_7$</td>
<td>(iv) Amphoteric</td>
</tr>
</tbody>
</table>

Which of the following is correct option?
(1) (iii) (iv) (i) (ii)
(2) (iv) (iii) (ii) (i)
(3) (i) (ii) (iii) (iv)
(4) (ii) (i) (iv) (iii)

176. 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) 0.40 K
(2) 0.60 K
(3) 0.20 K
(4) 0.80 K
177. Paper chromatography is an example of:
   (1) Thin layer chromatography
   (2) Column chromatography
   (3) Adsorption chromatography
   (4) Partition chromatography

178. 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) \(-4\) to \(+4\)
   (2) \(0\) to \(-4\)
   (3) \(+4\) to \(+4\)
   (4) \(0\) to \(+4\)

179. Reaction between benzaldehyde and acetophenone in presence of dilute NaOH is known as:
   (1) Cross Cannizzaro’s reaction
   (2) Cross Aldol condensation
   (3) Aldol condensation
   (4) Cannizzaro’s reaction

180. The number of protons, neutrons and electrons in \(^{175}_{71}\text{Lu}\), respectively, are:
   (1) \(71, 71\) and \(104\)
   (2) \(175, 104\) and \(71\)
   (3) \(71, 104\) and \(71\)
   (4) \(104, 71\) and \(71\)

- o o o -
Space For Rough Work
रफ कार्य के लिए जगह / Space For Rough Work
Read carefully the following instructions:

1. Each candidate must show on demand his/her Admit Card to the Invigilator.

2. No candidate, without special permission of the Superintendent or Invigilator, would leave his/her seat.

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.**

4. Use of Electronic/Manual Calculator is prohibited.

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.

6. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.

7. The candidates will write the Correct Test Booklet Code as given in the Test Booklet/Answer Sheet in the Attendance Sheet.