DATE- 11th June 2023

SET-B

PRAYASH CLASSES

NEET- 2024

SCREENING TEST

F. M: 720

TIME: 3. 20 Hrs.

Topic Covered: **Complete Syllabus of XI & XII**

Instruction:

- *Use **blue/black** ballpoint pen only to darken the appropriate **circle**.*
- *Mark should be dark and should completely **fill** the circle.*
- *Dark only one circle for each entry. Dark the circle in the space provided only.*
- *Rough work must not be done on the Answer sheet and do not use **white-fluid** or any other **rubbing material** on Answer sheet.*
- *Each question carries **4 marks**. For every **wrong** response **1 mark** shall be deducted from total score. **Unanswered / unattempted** questions will be given **no marks.***
- *There are two sections in each subject i.e., **Section-A & Section-B**. You have to attempt **all 35** questions from **Section-A** & only **10 questions** out of **15 from Section-B**.*

PHYSICS
(Section- A)

1. **A body possesses kinetic energy x, moving on a rough horizontal surface, is stopped in a distance y. The friction force exerted on the body is :**

(1) $\frac{\sqrt{x}}{y}$ (2) $\frac{x}{\sqrt{y}}$ (3) $\frac{x}{y}$ (4) $\frac{y}{x}$

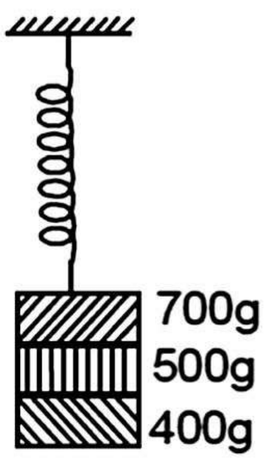
2. **A step-down transformer is used on a 1000V line to deliver 20A at 120 V at the secondary coil. If the efficiency of the transformer is 80% the current drawn from the line is:**

(1) 3A (2) 30 A (3) 0.3 A (4) 2.4 A

3. **Three masses 700g, 500g and 400g are suspended at the end of a spring as shown and are in equilibrium. When the 700g mass is removed, the system oscillates with a period of 3 seconds; when the 500g mass is also removed, it will oscillate with a period of:**

(1) 1 sec (2) 2 sec

(3) 3 sec (4) $\sqrt{\frac{12}{5}}$ sec



4. **In interference which quantity remains conserved:**

(1) Energy (2) Momentum

(3) Charge (4) Angular momentum

5. **Two waves having equations $x_1 = a \sin(\omega t + \phi_1)$, $x_2 = a \sin(\omega t + \phi_2)$. If in the resultant wave the frequency and amplitude remain equal to those of superimposing waves. Then phase difference between them is:**

(1) $\pi/6$ (2) $2\pi/3$ (3) $\pi/4$ (4) $\pi/3$

6. **A projectile is thrown with an initial velocity of $\vec{V} = a\hat{i} + b\hat{j}$. If the range of the projectile is double of the maximum height reached by it, then :**

(1) a = 2b (2) b = a

(3) b = 2a (4) b = 4a

7. **A car is moving with a speed of 30m/s on a circular path of radius 500 m. If its speed is increasing at a rate of 5 m/s², then the resultant acceleration at that instant is :**

(1) 6.83 m/s² (2) 8 m/s²

(3) 5.31 m/s² (4) 4 m/s²

8. **The total energy of the body excuting S.H.M. is E. Then the kinetic energy when the displacement is half of the amplitude:**

(1) $\frac{E}{2}$ (2) $\frac{E}{4}$

(3) $\frac{3E}{4}$ (4) $\frac{\sqrt{3}}{4}E$

9. **With how much velocity a block of mass 2kg should move on a frictionless horizontal surface so as to compress a spring with force constant 2 N/m by 4 m:**

(1) 4 m/s (2) 16 m/s

(3) 2 m/s (4) None of these

10. **In Young's experiment for interference of light the slits are 0.2 cm. apart are illuminated by yellow light $(\lambda = 5896\,\text{Å})$. What would be the fringe width on a screen placed 1 meter from the plane of slits. When the whole experiment is immersed in water $(\mu_\omega = 4/3)$:**

(1) 2.25 mm (2) 0.225mm

(3) 0.40 mm (4) 0.04 mm

11. **The force between two charges 0.06m apart is 5N. If each charge is moved towards the other by 0.01m, then the force between them will become:**

(1) 7.20 N (2) 11.25 N

(3) 22.50 N (4) 45.00 N

12. **Two similar spheres having +q and –q charge are kept at a certain distance. F force acts between the two. If in the middle of two spheres, another similar sphere having +q/2 charge is kept, then it experience a force in magnitude and direction as:**

(1) zero having no direction

(2) 8F towards +q charge

(3) 8F towards –q charge

(4) 4F towards –q charge

13. **The radius of gyration of a solid sphere about a tangent is given by :**

(1) $\sqrt{\left(\frac{2}{3}\right)}R$ (2) $\sqrt{\left(\frac{2}{5}\right)}R$

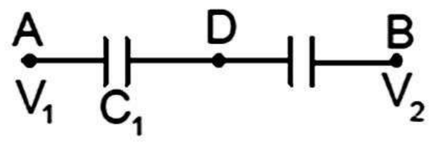
(3) $\sqrt{\left(\frac{5}{3}\right)}R$ (4) $\sqrt{\left(\frac{7}{5}\right)}R$

14. **The wavelength of the least energetic photon in the Balmer spectrum of hydrogen atom is:**

(1) 365 nm (2) 656 nm

(3) 912 nm (4) None of these

15. **Two condensers C_1 and C_2 in a circuit are joined as shown in figure. The potential of point A is V_1 and that of B is V_2. The potential of point D will be:**



(1) $\frac{1}{2}(V_1 + V_2)$ (2) $\frac{C_2V_1 + C_1V_2}{C_1 + C_2}$

(3) $\frac{C_1V_1 + C_2V_2}{C_1 + C_2}$ (4) $\frac{C_2V_1 - C_1V_2}{C_1 + C_2}$

16. **With a potentiometer null point were obtained at 140 cm and 180 cm with cells of emf 1.1 V and one unknown X volt. Unknown emf is:**

(1) 1.1V (2) 1.8 V

(3) 2.4 V (4) 1.41 V

17. **A long magnetic needle of length 2L, magnetic moment M and pole strength m units is broken into two pieces at the middle. The magnetic moment and pole strength of each piece will be :**

(1) $\frac{M}{2}, \frac{m}{2}$ (2) $M, \frac{m}{2}$

(3) $\frac{M}{2}, m$ (4) M, m

18. **If the tension and diameter of a sonometer wire of fundamental frequency n are doubled and density is halved then its fundamental frequency will become :**

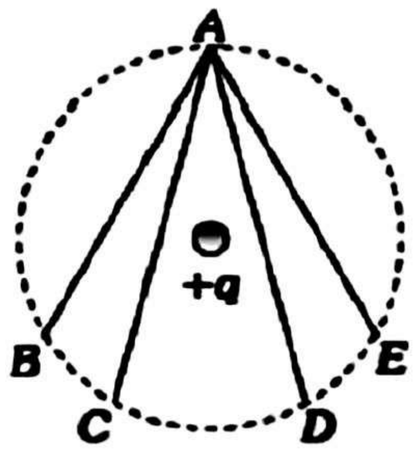
(1) $\frac{n}{4}$ (2) $\sqrt{2}n$ (3) n (4) $\frac{n}{\sqrt{2}}$

19. **The relation between the gas pressure P and average kinetic energy per unit volume E is :**

(1) $P = \frac{1}{2}E$ (2) P = E

(3) $P = \frac{3}{2}E$ (4) $P = \frac{2}{3}E$

20. **In the electric field of a point charge q, a certain charge is carried from A to C, A to D and A to E. A,B,C,D,E are on the circle with center at point +q. Then the work done :**



(1) Is least along the path AB

(2) Is least along the path AD

(3) Is zero along all the paths AB, AC, AD and AE

(4) Is least along AE

21. **The electric field strength in EM wave is 10^4 V/m. The magnitude of magnetic field strength (in tesla) will be:**

(1) 10^4 (2) 3×10^{12}

(3) 3.3×10^{-4} (4) 3.3×10^{-5}

22. **Half-life of a radioactive substance is 20 minute. The time between 20% and 80% decay will be:**

(1) 20 min (2) 40 min

(3) 30 min (4) 25 min

23. **A solid sphere of mass 10 kg and diameter 1 m rolls without slipping with uniform speed 5 m/s on a horizontal surface. Find its total kinetic energy.**

(1) 165 J (2) 175 J

(3) 97 J (4) 135 J

24. **The radius of curvature of an equiconvex lens is 40 cm and refractive index of material of lens is 1.5. The focal length of the lens is :**

(1) 20 cm (2) 40 cm

(3) 10 cm (4) 80 cm

25. **A resistor of 50 Ω an inductor of (20 / π) H and a capacitor of (5 / π) μF are connected in series to a voltage supply of 230V-50 Hz. Find the impedance of the circuit.**

(1) 50 Ω (2) 65 Ω

(3) 75 Ω (4) 35 Ω

26. **The retarding potential for having zero photo-electron current:**

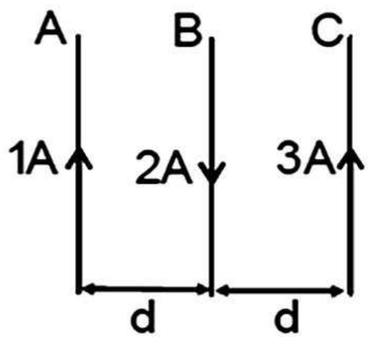
(1) Is proportional to the wavelegnth of incident light

(2) Incrases unifromly with the increase in the wavelength fo incident light

(3) Is proportional to the frequency of incident light

(4) Increases uniformly with the increase in the frequency of incident light wave

27. **Three long straight wires A, B and C are carrying current as shown in figure. The resultant force on B is directed:**



(1) Towards A (2) Towards C

(3) Remains stationary (4) None of these

28. **When a current of 2.5 ± 0.5 ampere flows through a wire, it develops a potential difference of 20 ± 1 volt. Find the resistance of the wire.**

(1) 6 ± 3 (2) 7 ± 2

(3) 8 ± 2 (4) 10 ± 3

29. **An uniform elastic roap of length L (area A), mass m is sliding on a horizontal smooth table by force F as shown in figure. If Young's modulus of material is Y then extension in roap is :**

(1) $\frac{FL}{AY}$ (2) $\frac{2FL}{AY}$

(3) $\frac{FL}{2AY}$ (4) $\frac{FL}{3AY}$

30. **At any place on earth, the horizontal component of earth's magnetic field is $\sqrt{3}$ times the vertical component. The angle of dip at that place will be**

(1) 60° (2) 45° (3) 90° (4) 30°

31. **A convex lens of power 4D is kept in contact with a concave lens of power 3D, the effective power of combination will be :**

(1) 7D (2) 4D/3 (3) 1D (4) 3D/4

32. **The ratio of the radii of the nuclei $_{13}Al^{27}$ and $_{52}Te^{125}$ is approximately:**

(1) 3 : 5 (2) 13 : 52

(3) 40 : 177 (4) 14 : 73

32. **In a common base circuit, the current gain is 0.96. If the base current is 60 mA, find the emitter current is :**

(1) 3 mA (2) 1.5 mA

(3) 1.44 mA. (4) 2.1 mA.

34. **An object is kept on a smooth inclined plane of 1 in *l*. The horizontal accleration to be imparted to the inclined plane so that the object is stationary relative to incline is :**

(1) $g\sqrt{l^2-1}$ (2) $g(l^2-1)$

(3) $\frac{g}{\sqrt{l^2-1}}$ (4) $\frac{g}{l^2-1}$

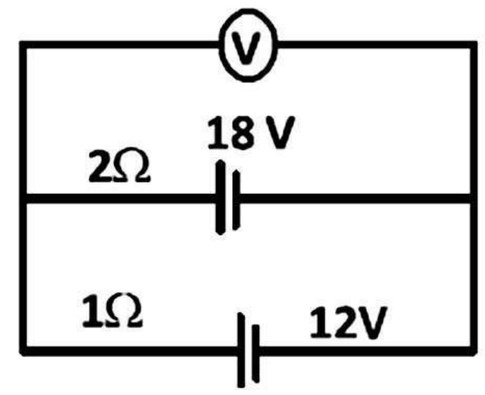
35. **Two batteries, one of emf 18 volt and internal resistance 2Ω and the other of emf 12 volt and internal resistance 1Ω, are connected as shown in the adjoining figure. The voltmeter V will record a reading of:**

(1) 30 volt

(2) 18 volt

(3) 15 volt

(4) 14 volt



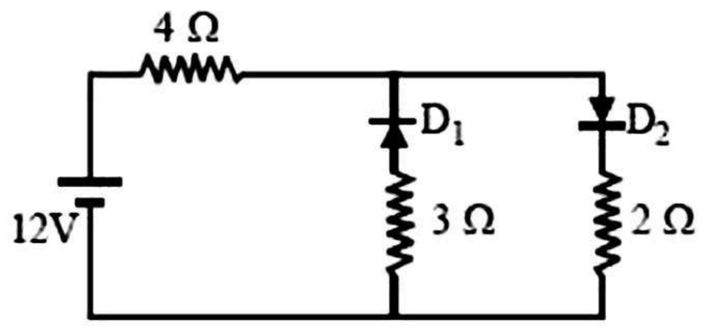
Section- B

36. **An aeroplane with wing span 50m is flying horizontally with the speed 360 Km/hr in presence of vertical component of the earth's magnetic field 2×10^{-4} tesla then potential difference between the tips of wings would be :**

(1) zero (2) 0.1 V

(3) 1 V (4) 0.01 V

37. **The circuit has two oppositely connected ideal diodes in parallel. What is the current flowing in the cell :**



(1) 1.71 A (2) 2.00 A

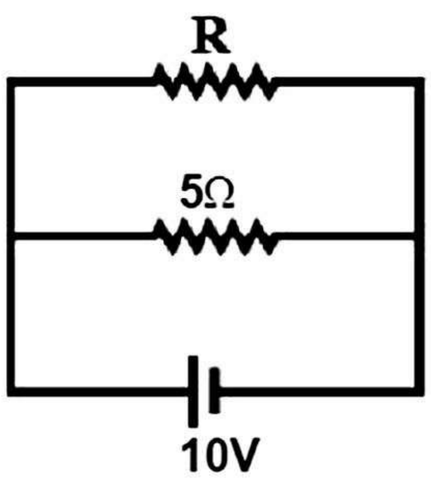
(3) 2.31 A (4) 1.33 A

38. **If the terminal speed of a sphere of gold (density = 19.5 kg/m³) is 0.2 m/s in a viscous liquid (density = 1.5 kg/m³), find the terminal speed of a sphere of silver (density=10.5 kg/m³) of the same size in the ame liquid. :**

(1) 0.4 m/s (2) 0.133 m/s

(3) 0.1 m/s (4) 0.2 m/s

39. **The power dissipated in the circuit shown in the figure is 30 watt. The value of R is :**



(1) 10Ω (2) 15Ω

(3) 20 Ω (4) 30Ω

40. **Radius of current carrying coil is 'R'. Then ratio of magnetic fields at the centre of the coil to the axial point, which is $R\sqrt{3}$ distance away from the centre of the coil :**

(1) 1 : 1 (2) 1 : 2

(3) 1 : 4 (4) 8 : 1

41. **A vessel is quarter filled with a liquid of refractive index μ. The remaining part of the vessel is filled with an immiscible liquid of refractive index $\frac{3}{2}\mu$. The apparent depth of the vessel is 50% of the actual depth. The value of μ is:**

(1) 1 (2) 3/2

(3) 2/3 (4) 4/3

42. **How much heat energy is gained when 5 kg of water at 20°C is brought to its boiling point ? (Specific heat of water = 4.2 kJ $kg^{-1}C^{-1}$) :**

(1) 1680 kJ (2) 1700 kJ

(3) 1720 kJ (4) 1740 kJ

43. **Match the column-I and column-II :**

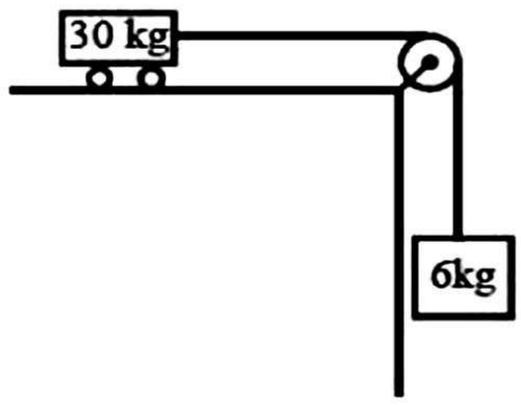
Column-I	Column-II
a. Isothermal	i. constant pressure
b. Isochoric	ii. constant temperature
c. Adiabatic	iii. constant volume
d. Isobaric	iv. constant heat.

(1) a-i, b-iii, c-ii, d-iv (2) a-iii, b-ii, c-i, d-iv.

(3) a-ii, b-iv, c-iii, d-i (4) a-ii, b-iii, c-iv, d-i

44. **If the coefficient of kinetic friction between the trolley and surface is 0.1, then tension in the string connecting masses is :**

[Take g=10 m/s²]



(1) 48 N (2) 51 N

(3) 53 N (4) 55 N

45. **Assertion: Bohr's atomic model can be applied for every atom.**

Reason: The energy state of electron in atom is continous.

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion

(3) If assertion is true but reason is false

(4) It the assertion and reason both are false

46. **What will be dimensions of a in the formula** $p = (p_0 + a)\ (b + t^{e^{-c\sqrt{t}/x+d^2}})$ **her p = pressure t = time and x = distance:**

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

(3) $[ML^{-1}T^{-4}]$ (4) $[M^{-1}L^{2}T^{3}]$

47. **A river is flowing with speed 3 km/hr west to east and a swimmer which can swim with speed 5 km/hr in still water. If river is 20 km wide then, match the column-A and column-B**

Column-A		Column-B
i. Minimum possible crossing time	p.	$\frac{20}{3}$hr
ii. Crossing time when swimmer go straight perpendicular to flow	q.	4 hr
iii. When swimmer swimms at 30° downstream with the bank	r.	$\frac{8\sqrt{3}}{3}$hr
iv. When swimmer swimms at 60° upstream with the bank	s.	8 hr

(1) i-q, ii-p, iii-s, iv-r (2) i-p, ii-q, iii-s, iv-r

(3) i-q, ii-s, iii-p, iv-r (4) i-p, ii-s, iii-q, iv-r

48. **When light source is placed at 1 m distant from photo electric cell, then value of stopping potential is obtained 4 volt. If it is placed at 4 m distance, then value of stopping potential becomes-**

(1) 2 volt (2) 1 volt

(3) 4 volt (4) 16 volt

49. **A body is dropped from a height h. If it acquires a momentum p, then the mass of the body is :**

(1) $\frac{p}{\sqrt{2gh}}$ (2) $\frac{p^2}{2gh}$

(3) $\frac{2gh}{p}$ (4) $\sqrt{\frac{2gh}{p}}$

50. **A particle moves from position $\bar{r}_1$ to $\bar{r}_2$ under the influence of a force $\bar{F}_1$ and $\bar{F}_2$. The workdone an the particle ignoring all the forces :**

(1) $(\bar{F}_1 + \bar{F}_2)\bullet(\bar{r}_2 - \bar{r}_1)$ (2) $(\bar{F}_1 - \bar{F}_2)\bullet(\bar{r}_1 - \bar{r}_2)$

(3) $(\bar{F}_1 + \bar{F}_2)\bullet(\bar{r}_1 - \bar{r}_2)$ (4) $(\bar{F}_1 - \bar{F}_2)\bullet(\bar{r}_1 + \bar{r}_2)$

SPACE FOR ROUGH WORK

CHEMISTRY
(Section- A)

51. **Given below are two statements :**

Statement I :

The limiting molar conductivity of KCl (strong electrolyte) is higher compared to that of CH_3COOH (weak electrolyte)

Statement II :

Molar conductivity decreases with decrease in concentration of electrolyte.

Choose the correct answer from the options given below

(1) Both Statement I and Statement II are incorrect

(2) Statement I is correct but Statement II is incorrect

(3) Statement I is incorrect but Statement II is correct

(4) Both, Statement I and Statement II are correct

52. **Correct order of acidic strength of following is :**

(1) HF > HBr > HCl > HI

(2) HF < HCl < HBr < HI

(3) HF > HCl > HBr > HI

(4) HCl < HBr < HF < HI

53. **Which is diamagnetic :**

(1) $[Fe(CN)_6]^{-3}$ (2) $[Co(F)_6]^{-3}$

(3) $[Ni(CN)_4]^{-2}$ (4) $[NiCl_4]^{-2}$

54. **Match the following :**

(i) Foam	(a) smoke
(ii) Gel	(b) cell fluid
(iii) Aerosol	(c) jellies
(iv) Emulsion	(d) rubber
	(e) froth
	(f) milk

(1) (i)-(d), (ii)-(b), (iii)-(a), (iv)-(e)

(2) (i)-(e), (ii)-(c), (iii)-(a), (iv)-(f)

(3) (i)-(b), (ii)-(c), (iii)-(e), (iv)-(d)

(4) (i)-(d), (ii)-(b), (iii)-(e), (iv)-(f)

55. **Zirconium is purified by :**

(1) Liquation

(2) Zone refining

(3) Vapour phase refining

(4) Electrolysis

56. **What is the structure of I_3^- :**

(1) T-shape (2) Pyramidal

(3) tetrahedral (4) Linear

57. **In mixture A and B components show –ve deviation as :**

a. $\Delta V_{mix} > 0$

b. $\Delta V_{mix} < 0$

c. **A – B interaction is weaker than A – A and B – B interaction.**

d. **A – B interaction is stronger than A – A and B – B interaction.**

(1) a, b and c (2) a only

(3) b and d (4) All of these

58. **The correct order of dipole moment is :**

(1) $CH_3Cl > CH_3F > CH_3Br$

(2) $CH_3F > CH_3Cl > CH_3Br$

(3) $CH_3Br > CH_3Cl > CH_3F$

(4) $CH_3Br > CH_3F > CH_3Cl$

59. **Which of the following alcohols can be prepared by the action of Grignard reagent with aldehydes :**

(1) 1° and 2° alcohols (2) 2° and 3° alcohols

(3) Only 1° alcohols (4) Only 2° alcohols

60. **Aryl halides are less reactive and more stable than alkyl halides due to :**

(1) In aryl halides, the delocalization of electron pair occurs

(2) The alkyl halides, the C – X bond is sp^3 – hybridized while in aryl halides it is sp^2 – hybridized

(3) In aryl halides C – X bond length is stronger than alkyl halides

(4) All of these

61. **The following reaction is known as**

Phenol $\xrightarrow[H^+]{CHCl_3/NaOH}$ **Salicylaldehyde**

(1) Gattermann aldehyde synthesis

(2) Duff reaction

(3) Perkin reaction

(4) Reimer-Tiemann reaction

62. **Match List-I with List-II**

List-I (Species)	List-II (No. of lone pair of electron on the central atom)
(a) XeF_2	(i) 0
(b) XeO_2F_2	(ii) 1
(c) XeO_3F_2	(iii) 2
(d) XeF_4	(iv) 3

Choose the most appropriate answer from the options given below:

(1) (a)-(iiii), (b)-(iv), (c)-(ii), (d)-(i)

(2) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

(3) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

(4) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

63. **The molar conductances of HCl, NaCl and CH_3COONa are 500, 200 and 100 Ω^{-1} cm^2 mol^{-1} respectively. The molar conductance for CH_3COOH is :**

(1) 561 Ω^{-1} cm^2 mol^{-1}

(2) 391 Ω^{-1} cm^2 mol^{-1}

(3) 400 Ω^{-1} cm^2 mol^{-1}

(4) 612 Ω^{-1} cm^2 mol^{-1}

64. **Find the correct formula regarding relation between density, mass, edge length and number of atoms in a unit cell of crystal lattice :**

(1) $d = \frac{M}{a^3 N_A}$ (2) $d = \left[\frac{ZM}{N_A d}\right]^{1/2}$

(3) $a = \left[\frac{Z.M}{N_A . d}\right]^{1/3}$ (4) None of these

65. **Which of the following defects is generally possessed by FeO :**

(1) Metal excess (2) Metal deficiency

(3) Impurity (4) Stoichiometric

66. **The value of equilibrium constant for a feasible cell reaction is :**

(1) < 1 (2) = 1

(3) > 1 (4) Zero

67. **Match List-I with List-II**

List-I (Parameter)	List-II (Unit)
(a) Cell constant	(i) S m^2 mol^{-1}
(b) Molar conductivity	(ii) Dimensionless
(c) Conductivity	(iii) m^{-1}
(d) Degree of dissociation of electrolyte	(iv) Ω^{-1} m^{-1}

Choose the most appropriate answer from the options given below:

(1) (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

(2) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

(3) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

(4) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

68. **Which alkane has highest boiling point :**

(1) Hexane

(2) 2-2-dimethyl butane

(3) 3-methyl pentane

(4) 2, 3-dimethyl butane

69. **Hyperconjugation effect involves :**

(1) Delocalization of lone pair into an adjacent π-bond.

(2) Delocalization of π-electron into an adjacent double bond.

(3) Delocalization of σ-electrons into an adjacent π-bond.

(4) All are true.

70. **The most stable ion is :**

(1) $[Fe(OH)_5]^{3-}$ (2) $[Fe(CN)_6]^{3-}$

(3) $[FeCl_6]^{3-}$ (4) $[Fe(H_2O)_6]^{3+}$

71. **The charge on 1 g ion of Al^{3+} is [N_A=Avogadro's number, e=charge on one electron] :**

(1) 1/27 N_A e coulomb

(2) 1/3 × N_A e coulomb

(3) 1/9 × N_A e coulomb

(4) 3 × N_A e coulomb

72. **Match the column :**

List-I	List-II
a. XeF_4	i. Pyramidal
b. XeF_6	ii. T-shape
c. XeO_3	iii. Distorted octahedral
d. $XeOF_2$	iv. Square planer

(1) a-iv, b-iii, c-i, d-ii (2) a-i, b-ii, c-iii, d-iv

(3) a-ii, b-i, c-iii, d-iv (4) a-iv, b-i, c-iii, d-ii

73. **In Metallurgy of iron when limestone is added to the blast furnace the calcium ion end up in :**

(1) Slag (2) Gangue

(3) Metallic Calcium (4) Calcium carbonate

74. **Given below are two statements: one is labelled as Assertion(A) and the other is labelled as Reason (R).**

Assertion :

Electron gain enthalpy becomes less negative as we go down a group.

Reason :

Size of the atom increase on going down the group and the added electron would be farther from the nucleus.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Both (A) and (R) are correct but (R) is not the correct exaplanation of (A)

(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

75. **Which mode of expressing concentration depends upon temperature :**

(1) Molarity (2) Molality

(3) Mole fraction (4) All of these

76. **A certain orbital has no angular nodes and two radial nodes. The orbital is :**

(1) 2s (2) 3s (3) 3p (4) 2p

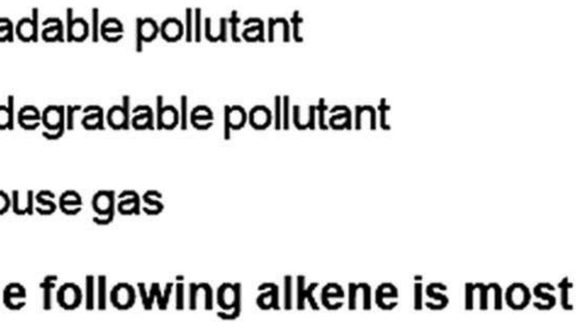
77.

Species	Bond Order
i. Ne_2	p. 1
ii. N_2	q. 3
iii. O_2	r. 2
iv. F_2	s. 0

(1) i-s, ii-q, iii-r, iv-p (2) i-p, ii-q, iii-r, iv-s

(3) i-r, ii-p, iii-s, iv-q (4) i-s, ii-q, iii-p, iv-r

78. **Electrophile attacks on the following :**



In which cases $\overset{+}{N}O_2$ will be on meta-position :

(1) b and d (2) a, b and c

(3) b and c only (4) a only

79. **What is DDT among the following :**

(1) A fertilizer

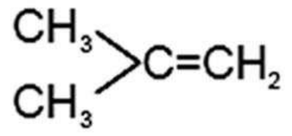
(2) Biodegradable pollutant

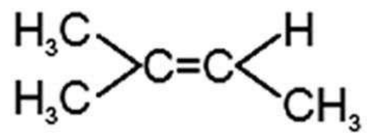
(3) Non-biodegradable pollutant

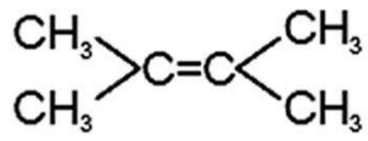
(4) Greenhouse gas

80. **Which of the following alkene is most stable :**

(1) $CH_3CH=CH_2$

(2) 

(3) 

(4) 

81. $Na_2B_4O_7.10H_2O \xrightarrow{\Delta} A \xrightarrow{\Delta} B + 2NaBO_2$

Compound B is :

(1) B_2H_6 (2) B_2O_3

(3) Na_2O (4) $B_3N_3H_6$

82. **Producer gas is :**

(1) mixture of CO and H_2

(2) mixture of N_2 and O_2

(3) mixture of CO and N_2

(4) mixture of N_2 and H_2O

83. **ZSM-5 is used to convert :**

(1) Alcohols into gasoline (2) Alcohols into acid

(3) Aldehyde into alcohol (4) None

84. **Galena is ore of :**

(1) Sb (2) Pb (3) Hg (4) Mg

85. **The compound $[Co(SO_4)(NH_3)_5]Br$ and $[Co(SO_4)(NH_3)_5]Cl$ represents :**

(1) Linkage isomerism

(2) Ionisation isomerism

(3) Coordination isomerism

(4) No any isomerism

Section- B

86. **For a first order reaction, slope of the graph ln(a-x) Vs time.**

(1) (1/K) (2) -(1/K)

(3) -K (4) (-2.303/K)

87. **The vapour pressure of two liquids 'P' and 'Q' are 80 and 60 torr respectively. The total vapour pressure of solution obtained by mixing 3 mole of P and 2 mol of Q would be :**

(1) 140 torr (2) 20 torr

(3) 68 torr (4) 72 torr

88. **Match list I with List II & tick the correct option:**

List-I	List-II
(1) Adipic acid	**(i) Nylon 6**
(2) Caproluctum	**(ii) Insulin**
(3) Enzyme	**(iii) Pepsin**
(4) Hormone	**(iv) Nylon 6.6**

Option : (1) (2) (3) (4)

(1) (i) (iv) (iii) (ii)

(2) (iv) (ii) (iii) (i)

(3) (iv) (i) (iii) (ii)

(4) (i) (ii) (iii) (iv)

89. **Aldol condensation will not occur in:**

(1) HCHO (2) CH_3CH_2CHO

(3) CH_3COCH_3 (4) CH_3CHO

90. **Acetaldehyde cannot exhibit:**

(1) Iodoform test (2) Lucas test

(3) Benedict's test (4) Tollen's test

91. **A metal has a fcc lattice. The edge length of the unit cell is 404 pm. The density of the metal is 2.72 g cm^{-3}. The molar mass of the metal is :**

(1) 40 g mol^{-1} (2) 30 g mol^{-1}

(3) 27 g mol^{-1} (4) 20 g mol^{-1}

92. **Electrophile in the case of chlorination of benzene in presence of $FeCl_3$ is :**

(1) Cl^+ (2) Cl^-

(3) Cl (4) $FeCl_3$

93. **Which oxide is neutral :**

(1) N_2O (2) N_2O_3

(3) N_2O_5 (4) Both N_2O and N_2O_3

94. **A hypothetical electrochemical cell is shown below**

$A|A^+(xM)||B^+(yM)|B$

The emf measured is +0.20 V. The cell reaction is:

(1) $A^+ + B \rightarrow A + B^+$

(2) $A^+ + e^+ \rightarrow A$; $B^+ + e^- \rightarrow B$

(3) $A + B^+ \rightarrow A^+ + B$

(4) cannot predicted

95. **Which one of the following statement for the order of a reaction is incorrect :**

(1) Order of reaction is always whole number

(2) Order can be determined only experimentally

(3) Order is not influenced by stoichiometric coefficient of the reactant

(4) None of these

96. **Select the incorrect statement :**

(1) Physical adsorption is reversible while chemical is irreversible

(2) High pressure favours physical adsorption while low pressure favours chemical adsorption

(3) Physical adsorption is not specific while chemical is highly specific

(4) High activation energy is involved in chemical adsorption.

97. **In the reaction,**

$$4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(l)$$

When 2 mole of ammonia and 2 mole of O_2 are made to react to completion, then :

(1) 2.4 mole of H_2O is produced

(2) 1.6 mole of NO will be produced

(3) All the NH_3 will be consumed

(4) Both 1 and 2

98. **The period containing maximum number of gaseous element :**

(1) Zero (2) 1st

(3) Six (4) Second

99. **The vant Hoff factor for $K_3[Fe(CN)_6]$, if it is 75% dissociated :**

(1) 3.5 (2) 4.0 (3) 3.25 (4) 3.75

100. **Orbital angular momentum of a 3d-electron is :**

(1) $\sqrt{2}.\frac{h}{2\pi}$ (2) $\sqrt{6}.\frac{h}{2\pi}$

(3) $\frac{h}{2\pi}$ (4) $\frac{h}{4\pi}$

BOTANY
(Section- A)

101. Which one is **wrong** statement w.r.t. bacteria?

(1) They are the sole members of kingdom Monera

(2) They are very complex in behaviour

(3) They show most extensive metabolic diversity

(4) They can be only parasite or saprophyte

102. Which one is **not** true about *Nostoc*?

(1) Photosynthetic autotroph

(2) Has chlorophyll *a*

(3) Can fix atmospheric nitrogen

(4) Unicellular eukaryote

103. Match the following columns and choose the **correct** option

	Column-I		**Column-II**
a.	Hypogynous flower	(i)	Peach
b.	Epigynous flower	(ii)	Superior ovary
c.	Perigynous flower	(iii)	Inferior ovary

(1) a(iii), b(i), c(ii) (2) a(ii), b(iii), c(i)

(3) a(iii), b(ii), c(i) (4) a(i), b(iii), c(ii)

104. Read the below given features and select the **correct** group of fungi on the basis of the same

a. Coenocytic mycelium

b. Motile or non-motile spores

c. Spores are endogenously produced

(1) Phycomycetes

(2) Basidiomycetes

(3) Ascomycetes

(4) Deuteromycetes

105. Direct elongation of the radicle leads to the formation of

(1) Prop root (2) Tap root

(3) Fibrous root (4) Adventitious root

106. Select one, which is **correctly** matched

(1) Red tide – Red algae

(2) Pellicle – *Euglena*

(3) Fruiting body formation in slime moulds – Under favourable conditions

(4) *Entamoeba* – Autotrophic protist

107. *Cuscuta* is a parasite. It belongs to the kingdom

(1) Fungi (2) Plantae

(3) Protista (4) Monera

108. Choose **incorrect** statement

(1) The boundary of the kingdom Protista is not well defined

(2) All the protistans have either flagella or cilia

(3) Diatoms are the chief producer in the ocean

(4) 'Diatomaceous earth' is actually accumulation of fossil deposits of cell wall of diatoms

109. Bacteriophages usually have

(1) ssRNA (2) dsDNA

(3) dsRNA (4) ssDNA

110. In 'lily family', flower is

(1) Trimerous (2) Tetramerous

(3) Pentamerous (4) Zygomorphic

111. Soap box like cell wall is feature of

(1) Dinoflagellates (2) Diatoms

(3) Euglenoids (4) All protists

112. Select the **incorrect** statement regarding the cell organelle found in both prokaryotic and eukaryotic cells.

(1) It contains hydrolytic enzymes

(2) It is non-membrane bound organelle

(3) It is the site of protein synthesis

(4) It is made up of two subunits

113. Read the following statements and choose the option which is true for them.

Statement-1 : Endoplasmic reticulum is continuous with the outer membrane of nucleus.

Statement-2 : Lipids like steroidal hormones are synthesised in smooth endoplasmic reticulum.

(1) Only statement-1 is incorrect

(2) Only statement-2 is incorrect

(3) Both the statements are incorrect

(4) Both the statements are correct

114. Match the following columns and select the **correct** option.

	Column I		Column II
a.	Contractile vacuole	(i)	Provides buoyancy
b.	Gas vacuole	(ii)	Forms acrosome of sperms
c.	Lysosome	(iii)	Rich in hydrolytic enzymes
d.	Golgi complex	(iv)	Helps in excretion

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

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

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

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

115. Select the **correct** statement regarding active and passive transport.

(1) Active transport is an energy independent process whereas passive transport is an energy dependent process.

(2) Energy is not required in passive transport but it is required in active transport

(3) Both active and passive transports are energy independent processes

(4) Energy is required in both active and passive transports

116. Some bacteria are resistant to antibiotics. This phenotypic feature of bacteria is due to

(1) Presence of genomic DNA

(2) Absence of cellulosic cell wall

(3) Absence of 80S ribosomes

(4) Presence of plasmid DNA

117. Sugar is synthesized-
A) Non-enzymatically in grana
B) Non-enzymatically in stroma
C) Enzymatically in grana
D) Enzymatically in stroma

118. End product of Z-scheme is-
A) ATP B) Glucose
C) $NADH + H^+$ D) Both A & C

119. When PGAL is converted into BPGA in process of respiration there is formation of?
A) 1 molecule of ATP
B) 1 molecule of H2O
C) 1 molecule of $NADH + H^+$
D) 1 molecule of ADP

120. Which enzyme is involved in lactic acid fermentation?
A) Pyruvic acid decarboxylase
B) Lactate dehydrogenase
C) Alcohol dehydrogenase
D) More than one option is correct

121. 2, 4-D is used to –
A) Kill gymnosperms
B) Kill dicot
C) Kill monocot
D) Both A & B

122. Ethylene initiates –
A) Flowering in pineapple
B) Flowering in mango
C) Synchronizing fruit-set in pineapple
D) All of these

123. Which of the given traits w.r.t. pea plant are expressed in both homozygous as well as heterozygous condition?
(a) Inflated pod
(b) Green pod
(c) Axial flower
(d) White flower
(1) (a) and (b) only (2) All except (d)
(3) All of these (4) Both (c) and (d)

124. The best example for incomplete dominance is
(1) Colourblindness
(2) Flower colour in pea plant

(3) ABO blood group

(4) Flower colour in snapdragon

125. Select the **correct** one w.r.t. broadly utilitarian service provided by the biodiversity.

(1) Fibre

(2) Industrial product

(3) Drugs

(4) Flood and erosion control

126. In the process of transcription in eukaryotes, the RNA polymerase II transcribes

(1) Precursor of mRNA

(2) The adapter RNA

(3) 5S rRNA and SnRNA

(4) rRNAs – 28S, 18S

127. In which of the given process, both of the given strands of nucleic acid act as template?

(1) DNA replication (2) Transcription

(3) Translation (4) Reverse transcription

128. Read the following statements and select the **correct** option.

A. The synergids have special cellular thickenings called filiform apparatus, which play an important role in guiding the entry of pollen tube.

B. Three antipodal cells are found towards the micropylar end in most of angiosperms.

(1) Both A and B are correct

(2) Only A is correct

(3) Only B is correct

(4) Both A and B are incorrect

129. The relationship between species richness and area on logarithmic scale is Log S = Log C + Z Log A.

What does 'Z' represent?

(1) Species richness

(2) Regression coefficient

(3) Y-intercept

(4) Area

130. Select the **correct** statements w.r.t. UTRs.

(A) These are additional sequences which are not translated.

(B) These are present at both 5′ end after start codon and 3′-end before stop codon.

(C) These are present on mRNA.

(D) Required for efficient translation process.

(1) (A) and (B) only (2) All of these

131. Plant which causes the severe allergies and bronchial afflictions in some people and came into India as a contaminant with imported wheat, is

(1) Water hyacinth (2) *Parthenium*

(3) *Hibiscus* (4) *Zostera*

132. 2000 years old viable seed of which plant was found during the archeological excavation at King Herod's palace near the Dead Sea?

(1) *Crotalaria* (2) *Phoenix dactylifera*

(3) *Lupinus arcticus* (4) *Vinca*

133. Multicarpellary, apocarpous pistil is present in

(1) *Papaver* (2) *Michelia*

(3) *Hibiscus* (4) Tomato

134. Which of the following is **not** true for the pollen grains?

(1) The hard outer layer is made up of sporopollenin

(2) Pollen grains are well preserved as fossils because of the presence of sporopollenin

(3) The inner wall of the pollen grain is called the intine

(4) Inner wall of pollen grain is resistant to strong acid and can withstand high temperatures

135. In which genetic condition, each cell in the affected person, has only one sex chromosome?

(1) Thalassemia

(2) Phenylketonuria

(3) Turner's syndrome

(4) Klinefelter's syndrome

Section- B

136. What is **not** true about mycoplasma?

(1) They are smallest living cell

(2) They lack cell wall

(3) They cannot survive without oxygen

(4) They may be pathogenic in animals and plants

137. Which one is **odd** w.r.t. functions of mycobiont in lichens?

(1) Body covering

(2) Anchoring

(3) Absorption of water and minerals

(4) Preparation of food

138. A cell has 4 chromosomes (made up of 20 pg of DNA) in its G_1 phase. The number of chromosomes and the amount of DNA in this cell at its G_2 phase will be respectively

(1) 2 and 20 pg (2) 8 and 40 pg

(3) 4 and 20 pg (4) 4 and 40 pg

139. The subunits of ribosomes that are present in eukaryotic cells are

(1) 50S and 30S only

(2) 60S and 40S only

(3) 50S and 40S only

(4) 30S, 40S, 50S and 60S

140. CF0 is –
A) embedded in chloroplast membrane
B) protruding on outer surface of chloroplast
C) protruding on inner surface of chloroplast membrane
D) None of these

141. What does cytochrome c oxidase complex contains?
A) Cytochrome a
B) Cytochrome a3
C) Two copper centres
D) All of the above

142. Which of the following sequence of bases on anticodon loop is **true** for tRNA that brings methionine to the mRNA?

(1) 5′ AUG 3′ (2) 5′ CAU 3′

(3) 5′ UAC 3′ (4) 5′ GUA 3′

143. Osmosis refers to
(A) diffusion of solute across permeable membrane
(B) diffusion of solute across differentially-permeable membrane
(C) diffusion of water across selectively permeable membrane
(D) diffusion of water across permeable membrane

144. Apoplast is continuous throughout the plant, except at
(A) epidermis (B) casparian strips
(C) plasmodesmata (D) tracheids

145. Choose the correct option for phloem transport
(A) loading is active process and unloading is passive
(B) loading is passive process and unloading is active
(C) Both loading and unloading are active
(D) Both loading and unloading are passive

146. The main plant body of bryophyte is ___A___ that produce ____B____ .
A) A = diploid B = gametes
B) A = haploid B = gametes
C) A = haploid B = spores
D) A = diploid B = spores

147. Gametophyte of pteridophyte is –
A) Small but multicellular, free living, mostly photosynthetic, differentiated into root, stemand leaf
B) Small inconspicuous but multicellular dependent mostly photosynthetic thalloid body
C) Small but multicellular, free living mostly photosynthetic thalloid structure
D) Small inconspicuous but multicellular free – living mostly non – photosynthetic thalloid body

148. PEN provide-
A) Protection of embryo
B) Nourishment to embryo
C) Anchorage to embryo
D) None of these

149. More than 10 species of vertebrates disappeared a year after removing the starfish from habitat is due to-
A) interspecific competition
B) Brood parasitism
C) Intra specific competition
D) None of these

150. Which growth model is considered as more realistic one?
A) Exponential growth B) Constant growth
C) Logistic growth D) None of these

ZOOLOGY
(Section- A)

151. During inspiration, the increase in the volume of thoracic chamber in the dorso-ventral axis occurs due to
(1) Relaxation of diaphragm
(2) Contraction of external intercostal muscles
(3) Contraction of diaphragm
(4) Relaxation of external intercostal muscles

152. Choose the **odd** one w.r.t. diffusion membrane at alveolar level for exchange of gases.
(1) Endothelium of blood capillary
(2) A cellular basement membrane
(3) Basement substance
(4) Squamous epithelium of alveolar wall

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

	Column-I		**Column-II**
(A)	pO_2 in tissues	(i)	95 mm Hg
(B)	pCO_2 in deoxygenated blood	(ii)	104 mm Hg
(C)	pO_2 in alveoli	(iii)	40 mm Hg
(D)	pO_2 in oxygenated blood	(iv)	45 mm Hg

	A	B	C	D
(1)	(iii)	(i)	(ii)	(iv)
(2)	(iii)	(iv)	(ii)	(i)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(ii)	(iv)	(iii)	(i)

154. A disorder of respiratory system mainly caused due to chronic cigarette smoking is

(1) Asthma (2) Silicosis

(3) Emphysema (4) Asbestosis

155. Conditional reabsorption of Na^+ and water takes place in which part of nephron?

(1) PCT (2) DCT

(3) Henle's loop (4) Collecting duct

156. Match WBCs in column I with their per cent of total WBCs in column II and choose the **correct** option.

	WBCs		Per cent of total WBCs
(A)	Basophils	(i)	60-65 per cent
(B)	Neutrophils	(ii)	20-25 per cent
(C)	Lymphocytes	(iii)	2-3 per cent
(D)	Eosinophils	(iv)	0.5-1 per cent
		(v)	6-8 per cent

	A	B	C	D
(1)	(iv)	(i)	(v)	(iii)
(2)	(iv)	(i)	(ii)	(iii)
(3)	(i)	(iv)	(ii)	(iii)
(4)	(iv)	(i)	(ii)	(v)

157. Serum differs from plasma in being devoid of

(1) Clotting factors (2) Antibodies

(3) RBCs (4) Albumins

158. In a healthy individual, the glomerular filtration rate (GFR) is approximately _____ litre/day.

Choose the option that **correctly** fills the blank.

(1) 125 (2) 7.5

(3) 180 (4) 145

159. Complete the analogy w.r.t disorders of circulatory system.

Angina : Acute chest pain :: Atherosclerosis : _____

(1) Heart stops beating

(2) Heart muscle is damaged due to insufficient O_2

(3) Narrowing of blood vessels due to deposition of cholesterol

(4) Congestion of the lungs

160. Zwitterionic form is possible in

(1) Alanine (2) Guanine

(3) Adenine (4) Fructose

161. Choose the option that includes **incorrect** statements w.r.t. carbohydrates.

a. Homopolysaccharides consist of more than one type of monomer

b. Glycogen is a homopolymer and storehouse of energy in plant cell

c. Cellulose is a homopolymer of fructose

d. Inulin is homopolymer

(1) b and d (2) c and d

(3) a, b and c (4) a, b, c and d

162. The role of scrubbing mechanism installed in scrubber is to reduce SO_2 pollution in air to produce

(1) CO_2 (2) $CaSO_4$

(3) NO_2 (4) CO

163. Select the **correct** statement w.r.t. decomposition.

(1) It is largely an anaerobic process

(2) Low temperature accelerates decomposition

(3) Detritus rich in lignin and chitin have slow rate of decomposition

(4) It does not depend on climatic factor

164. The gases commonly responsible for greenhouse effect is

(1) CO_2 and N_2O (2) N_2O and CFC

(3) CFC and CH_4 (4) CO_2 and CH_4

165. Which type of ecological pyramid would be obtained with the following data?

Primary producer: 4 kg m^{-2}

Primary consumer: 18 kg m^{-2}

Primary carnivore: 32 kg m^{-2}

(1) Pyramid of energy

(2) Upright pyramid of number

(3) Inverted pyramid of number

(4) Inverted pyramid of biomass

166. Match the following

	Column I		Column II
A.	True ribs	**I.**	3 pairs
B.	False ribs	**II.**	2 pairs
C.	Floating ribs	**III.**	7 pairs

(A) A-I, B-II, C-III (B) A-III, B-I, C-II

(C) A- III, B - II, C - I (D) A-II, B-I, C-III

167. The hand contains ____ carpals (wrist bones), ____ metacarpals (palm bones), and ___ phalanges.
(A) 14, 5, 8 (B) 5, 8, 14
(C) 8, 5, 14 (D) 1, 5, 5

168. Arthritis is -
(A) Inflammation of muscles
(B) Inflammation of bone
(C) Inflammation of joints
(D) Inflammation of tongue

169. Vaccine of hepatitis B is produced from
A) yeast B) Rhizobium
C) Agrobacterium D) Azadirachta

170. HIV is not transmitted by
A) transfusion of contaminated blood
B) sharing of infected needles
C) sexual contact with infected persons
D) shaking hands with infected person

171. **Recognition site for which of the following restriction enzyme is present in *amp*^{R} gene of cloning vector, pBR322?**
(1) *Bam* HI (2) *Sal* I
(3) *Pst* I (4) *Pvu* II

172. **Match the column-I with column-II and choose the correct answer.**

Column-I	Column-II
a. *Bacillus thuringiensis*	(i) Used to isolate genetic material from fungal cell
b. T-DNA	(ii) Present in Ti plasmid of *Agrobacterium*
c. Gene gun	(iii) Used for transformation of plant cell
d. Chitinase	(iv) Produces insecticidal protein

(1) a-iv, b-i, c-iii, d-ii
(2) a-i, b-ii, c-iii, d-iv
(3) a-iv, b-ii, c-iii, d-i
(4) none of these

173. During agarose gel electrophoresis,
(1) Both large and small fragments move towards anode
(2) Small fragments move towards cathode due to less charge
(3) Large fragments move towards cathode due to more charge
(4) Both large and small fragments move towards cathode irrespective of charge

174. Read the following statements w.r.t. cloning vector, pBR322 and state them as true (T) or false (F).
(A) Gene encoding resistance to an antibiotic is considered as a selectable marker.
(B) Recognition site for *Eco*RI is present in *tet*^{R} gene.
(C) The recombinant plasmid will lose tetracycline resistance if a foreign DNA is inserted at recognition sequence of *Pvu* II.

Choose the **correct** option.

	A	B	C
(1)	T	T	T
(2)	F	T	T
(3)	T	F	F
(4)	F	T	F

175. *In-vivo* type of assisted reproductive technology involving gamete transfer that is used to help those females who cannot conceive is
(1) ZIFT (2) ICSI
(3) GIFT (4) IUT

176. Term for natural type of contraceptive method involving the role of hormones is
(1) Lactational amenorrhea
(2) LNG-20
(3) Femidoms
(4) Coitus interruptus

177. Fossils are remains of hard parts of life forms found in rocks. They are likely to be found in relative abundance in which type of rocks?
(1) Igneous (2) Granite
(3) Sedimentary (4) Metamorphic

178. **Spermatogenesis is 'switched on' at puberty due to significant increase in the secretion of hypothalamic hormone called**
(1) GnRH (2) FSH
(3) LH (4) Androgens

179. Attachment of embryo with uterine wall is called
(1) Gestation (2) Parturition
(3) Implantation (4) Fertilization

180. Secretion of which of the following structures prepares endometrium of uterus for implantation?
(1) Morula (2) Placenta
(3) Pars intermedia (4) Corpus luteum

181. How many sex chromosome(s) does a normal human inherit from his father?
(1) 23 (2) 46 (3) 2 (4) 1

182. All of the following structures are included in male sex accessory ducts **except**

(1) Seminiferous tubules (2) Vasa efferentia

(3) Rete testis (4) Epididymis

183. Statutory ban on amniocentesis in India is applicable for detection of

(a) Cleft palate

(b) Down's syndrome

(c) Haemophilia

(d) Sex of the foetus

(e) Sickle – cell anemia

(f) Cleft lip

Select the **correct** option.

(1) (a), (b) and (f) (2) (b), (c) and (d)

(3) Only (d) (4) (a) and (f)

184. Choose the **mismatch** w.r.t. contraceptive methods.

(1)	Diaphragm, cervical caps and vaults	-	Barrier methods
(2)	Vasectomy and tubectomy	-	Chemical method of contraception
(3)	Progestogen only pills	-	Alter the quality of cervical mucus
(4)	IUDs such as CuT	-	Promote phagocytosis of sperms within the uterus

185. The gene(s) which encode(s) the protein to control corn borer is/are

(1) *cryIIAb* (2) *cryIAc*

(3) *cryIAb* (4) *cryIAc* and *cryIIAb*

Section- B

186. Computed tomography uses 'A' to generate a three-dimensional image of the internals of an object. Here 'A' is

A) X-rays B) γ-rays

C) α-rays D) UV rays

187. Drug called 'Heroin' is synthesised by

A) methylation of morphine

B) acetylation of morphine

C) glycosylation of morphine

D) nitration of morphine

188. Which type of evolution is being referred to in the following line?

"When more than one adaptive radiation appeared to have occurred in an isolated geographical area representing different habitats".

(1) Coevolution

(2) Divergent evolution

(3) Microevolution

(4) Convergent evolution

189. In human females, meiosis-I starts

(1) Before birth during foetal stage of life

(2) After birth at puberty

(3) After puberty before menopause

(4) During fertile age before menopause

190. Which of the following is concerned with asexual reproduction only?

(1) Buds

(2) Gonads

(3) Zygote

(4) Fusion of sperms and ova

191. Read the given statements.

(a) Adoption is considered as a legal and one of the best methods for infertile couples looking for parenthood.

(b) Intrauterine insemination involves transfer of embryo into fallopian tubes.

(c) In ICSI, sperms are directly injected into the male reproductive tract.

Select the option that **correctly** mentions the above statements as true (T) or false (F).

(1) a-T, b-F, c-F (2) a-F, b-T, c-T

(3) a-T, b-F, c-T (4) a-F, b-F, c-T

192. In external genitalia of human females, a cushion of adipose connective tissue which is covered by skin and pubic hairs is called

(1) Mons pubis (2) Labia majora

(3) Labia minora (4) Clitoris

193. Neurons differ from a typical cell because of the presence of

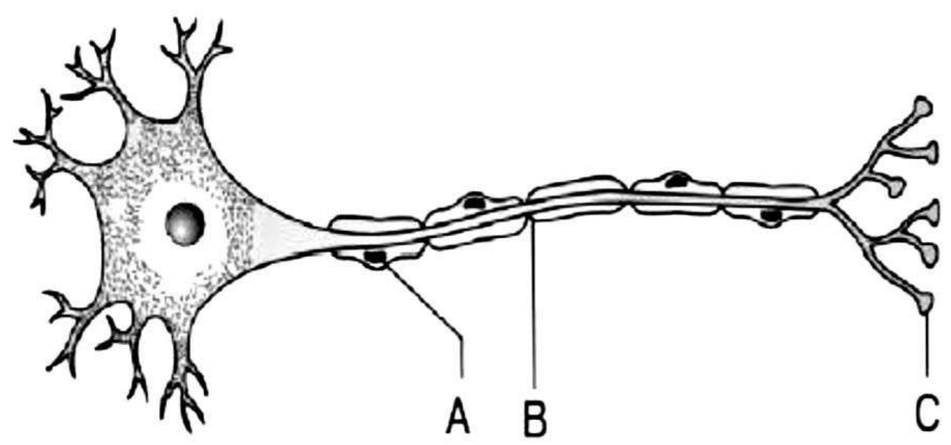
A) nucleolus

B) Nissl's granules

C) protein synthesizing machinery

D) microfilaments

194. Refer to the given diagram of the structure of a neuron and identify A, B and C.



Select the correct option.

	A	B	C
(A)	Nissl's granule	Axon	Schwann cell
(B)	Schwann cell	Nodes of Ranvier	Synaptic knob
(C)	Synaptic knob	Dendrite	Synaptic knob
(D)	Nucleus	Myelin sheath	Nissl's granule

195. Which chemical substance of tobacco stimulates adrenal grand to release adrenaline and noradrenaline?

A) Tannic acid B) Nicotine

C) Curamin D) Catechin

196. **Assertion (A):** Heart failure means the heart is not pumping blood effectively enough to meet the needs of the body.

Assertion (R): During heart failure, heart stops beating due to inadequate blood supply.

In the light of the above statements, choose the **correct** answer from the given options.

(1) (A) is false but (R) is true

(2) Both (A) and (R) are true and (R) is the correct explanation of (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are true and (R) is not the correct explanation of (A)

197. Vasa recta is absent or highly reduced in

(1) Cortical nephrons

(2) Juxtamedullary nephrons

(3) Cortical and juxtamedullary nephrons

(4) Juxtamedullary nephrons of aged persons only

198. Read the statements w.r.t urine formation.

(A) Around 1100-1200 mL of blood is filtered by the kidneys per minute.

(B) Podocytes are arranged in an intricate manner so as to leave minute spaces called slit pores.

(C) Blood is filtered finely through slit pores and all the constituents of plasma pass into the lumen of Bowman's capsule.

(D) An adult human excretes around 1-1.5 litre of urine per day.

Choose the option that **correctly** states the above statements as true (T) or false (F).

	A	B	C	D
(1)	T	F	F	T
(2)	F	T	F	T
(3)	T	F	T	T
(4)	T	T	F	T

199. Hisardale is the breed of sheep developed by crossing

(A) Cochin ram and Ghagus ewe

(B) Bikaneri ewes and Marino rams

(C) Bikaneri rams and Marino ewes

(D) Cochin ewe and Marino ram

200. The technique of controlled breeding experiments that includes superovulation in cows to make them produce 6–8 eggs per ovarian cycle is known as

(A) artificial insemination

(B) hormonal induction

(C) multiple ovulation embryo transfer technology

(D) embryo transfer technology

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

ANSWER KEY (SET - B)

Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.
1	C	41	B	81	B	121	B	161	D
2	A	42	A	82	C	122	D	162	B
3	B	43	D	83	A	123	B	163	C
4	A	44	D	84	B	124	D	164	D
5	B	45	D	85	D	125	D	165	D
6	C	46	A	86	C	126	A	166	B
7	C	47	A	87	D	127	A	167	c
8	C	48	C	88	C	128	B	168	b
9	A	49	A	89	A	129	B	169	A
10	B	50	A	90	B	130	C	170	D
11	B	51	A	91	C	131	B	171	C
12	D	52	B	92	A	132	B	172	C
13	D	53	C	93	A	133	B	173	A
14	B	54	B	94	B	134	D	174	C
15	C	55	C	95	A	135	C	175	C
16	D	56	D	96	B	136	C	176	A
17	C	57	C	97	D	137	C	177	C
18	C	58	A	98	D	138	D	178	A
19	D	59	A	99	C	139	D	179	C
20	C	60	D	100	B	140	D	180	D
21	D	61	D	101	D	141	D	181	D
22	B	62	B	102	D	142	B	182	A
23	B	63	C	103	B	143	C	183	C
24	B	64	C	104	A	144	B	184	B
25	A	65	B	105	B	145	C	185	C
26	D	66	C	106	B	146	B	186	A
27	A	67	C	107	B	147	C	187	B
28	C	68	A	108	B	148	B	188	D
29	C	69	C	109	B	149	A	189	A
30	D	70	B	110	A	150	c	190	A
31	C	71	D	111	B	151	B	191	A
32	A	72	A	112	A	152	B	192	A
33	B	73	A	113	D	153	B	193	B
34	C	74	D	114	C	154	C	194	B
35	D	75	A	115	B	155	B	195	B
36	C	76	B	116	D	156	B	196	C
37	B	77	A	117	D	157	A	197	A
38	C	78	B	118	D	158	C	198	D
39	A	79	C	119	C	159	C	199	B
40	D	80	D	120	B	160	A	200	C