



Aakash

Medical | IIT-JEE | Foundations

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MM : 720

Fortnightly Test for NEET-2026_RM(P1)_FT-06A

Time : 180 Min.

Topics Covered:**Physics:** Oscillations, Waves, Electric Charges & Fields**Chemistry:** Redox Reactions, Electrochemistry, Solutions**Botany:** Plant Kingdom**Zoology:** Chemical Coordination & Integration**General Instructions :**

Duration of Test is 3 hrs.

The Test consists of 180 questions. The maximum marks are 720.

There are four parts in the question paper consisting of Physics, Chemistry, Botany and Zoology having 45 questions in each part of equal weightage.

Each question carries +4 marks. For every wrong response, -1 mark shall be deducted from the total score. Unanswered/unattempted questions will be given no marks.

Use blue/black ballpoint pen only to darken the appropriate circle.

Mark should be dark and 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 the Answer sheet.

PHYSICS

- For a particle performing SHM, differential equation of motion is given as $\frac{d^2x}{dt^2} + 4x = 0$. The frequency of oscillation is
 - π Hz
 - $\frac{1}{\pi}$ Hz
 - 2π Hz
 - 2 Hz
- A spring-mass (m) system having spring constant (k) suspended from ceiling, has time period T in a stationary lift. If the lift is descending with acceleration $g/2$ then time period of spring-mass system will
 - be $\frac{2T}{3}$
 - be $\sqrt{\frac{3}{2}}T$
 - remain T
 - be $\frac{3}{2}T$
- If $x = 5 \sin\left(2\pi t + \frac{\pi}{3}\right)$ represents the motion of a particle executing simple harmonic motion, the maximum speed of particle and time period of oscillation respectively, are (Assume all the parameters are in SI units)
 - $31.4 \text{ m s}^{-1}, 2 \text{ s}$
 - $31.4 \text{ m s}^{-1}, 1 \text{ s}$
 - $5\pi \text{ m s}^{-1}, 2 \text{ s}$
 - $5\pi \text{ m s}^{-1}, 1 \text{ s}$
- If the frequency of a system executing SHM is f , then frequency of its total mechanical energy is
 - $2f$
 - f
 - Zero
 - Infinity

5. The equation for a travelling wave along negative x direction with amplitude 0.25 m and wavelength λ equals 0.5 m is given by

- $y = 0.25\sin(\omega t - 4\pi x)$
- $y = 0.25\sin(2\omega t + 2\pi x)$
- $y = 0.25\sin(\omega t + 4\pi x)$
- $y = 0.25\sin(4\omega t - kx)$

6. The third overtone produced by a vibrating string (fixed at both ends) 2 m long is 600 Hz. Fundamental frequency of vibration is

- 300 Hz
- 150 Hz
- 1200 Hz
- 200 Hz

7. Equation of a standing wave is given by

- $y = A\sin(\omega t - kx)$
- $y = A\sin\omega t$
- $y = 2A\sin kx \cos\omega t$
- All of the above

8. Consider the following statements A and B and identify the correct answer.

A: In a transverse wave, energy and matter are transferred from one point to the other.

B: In a stationary wave, the energy does not flow from one side to other side of a node.

- A is correct but B is incorrect
- A is incorrect but B is correct
- Both A and B are correct
- Both A and B are incorrect

9. The magnitude of electric field at a point 4 cm away from a line charge of density $2 \times 10^{-6} \text{ C/m}$ is

- $9 \times 10^5 \text{ N/C}$
- $9 \times 10^{-5} \text{ N/C}$
- $4.5 \times 10^5 \text{ N/C}$
- $18 \times 10^5 \text{ N/C}$

10. Electric field in a region is uniform and is given by

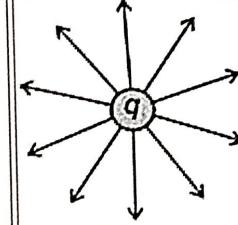
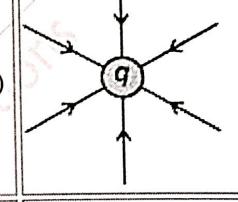
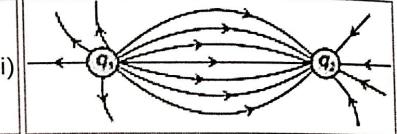
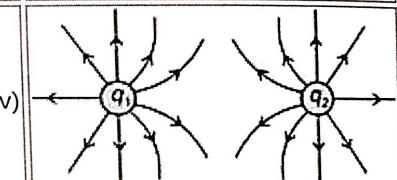
$\vec{E} = a\hat{i} + b\hat{j}$. The electric flux associated with a surface of area $\vec{A} = \pi R^2 \hat{j}$ is

- πaR^2
- πbR^2
- Zero
- $\pi(a + b)R^2$

11. An electric dipole of dipole moment $\vec{P} = (-4\hat{i} + 2\hat{j} - 4\hat{k}) \text{ C m}$ is placed in a uniform electric field $\vec{E} = (2\hat{i} - \hat{j} + 2\hat{k}) \text{ N C}^{-1}$. The torque (in N m) acting on dipole is

- Zero
- $4\hat{i} - 4\hat{j} + 8\hat{k}$
- $4\hat{i} + 4\hat{j} - 8\hat{k}$
- $-4\hat{i} + 4\hat{j} + 8\hat{k}$

12. Match the following

	Column-I	Column-II
a. $q < 0$	(i)	
b. $q > 0$	(ii)	
c. $q_1 > 0, q_2 < 0$	(iii)	
d. $q_1 > 0, q_2 > 0$	(iv)	

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

13. Three equal point charges q each, are placed at the vertices of an equilateral triangle of side a . The net electric field at the centroid of triangle is

(1) $\frac{\sqrt{3}q}{4\pi\epsilon_0 a^2}$

(2) $\frac{\sqrt{2}q}{4\pi\epsilon_0 a^2}$

(3) $\frac{q}{4\pi\epsilon_0 a^2}$

(4) Zero

14. The electric field decreases most rapidly among the following, with distance for

(1) Point charge

(2) Large charge sheet

(3) Long line charge

(4) Short electric dipole

15. A particle is executing SHM according to the equation $x = Asin\omega t$, then the distance from the mean position where the kinetic energy of particle equals the potential energy, will be nearly equal to

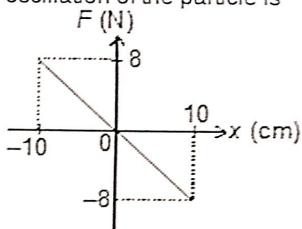
(1) 50% of A

(2) 85% of A

(3) 70% of A

(4) 65% of A

16. The variation of force (F) acting on a particle of mass 800 g with position (x) is as shown in figure. The time period of oscillation of the particle is



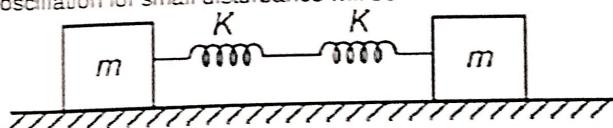
(1) $\frac{\pi}{10}$ s

(2) $\frac{\pi}{5}$ s

(3) $\frac{\pi}{4}$ s

(4) $\frac{\pi}{8}$ s

17. Two blocks each of mass m are connected by two light springs each having spring constant K and lying on smooth horizontal surface as shown in figure. Initially the system is at rest and spring is in natural length. The time period of oscillation for small disturbance will be



(1) $T = 2\pi\sqrt{\frac{m}{K}}$

(2) $T = \pi\sqrt{\frac{m}{K}}$

(3) $T = 2\pi\sqrt{\frac{m}{2K}}$

(4) $T = 2\pi\sqrt{\frac{2m}{K}}$

18. If time taken by a particle to travel from $x = \frac{A}{2}$ to $x = A$, in SHM of amplitude A , is 0.1 s, then time period of SHM is

(1) 0.1 s

(2) 1.2 s

(3) 0.2 s

(4) 0.6 s

19. A particle executes SHM according to the equation, $y = asin\omega t + bcos\omega t$. The amplitude of resulting simple harmonic motion is

(1) $a+b$

(2) $\sqrt{a^2+b^2}$

(3) $\sqrt{a^2-b^2}$

(4) $\sqrt{\frac{a^2+b^2}{2}}$

20. A particle is executing SHM with time period T . If it starts its motion from mean position, then its velocity at $\frac{T}{12}$ second will be

(Where $T = \frac{2\pi}{\omega}$ and A is amplitude of the particle)

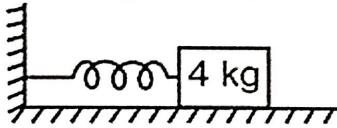
(1) $\frac{A\omega}{4}$

(2) $\frac{\sqrt{3}A\omega}{2}$

(3) $\frac{A\omega}{2}$

(4) $\frac{\sqrt{3}A\omega}{4}$

21. A spring having spring constant 1200 N m^{-1} is mounted on a fixed horizontal smooth platform as shown. A mass of 4 kg is attached to the free end of the spring. The mass is then pulled to a distance 2.0 cm and released, then maximum acceleration of the block is



- (1) 6 m s^{-2}
- (2) 3 m s^{-2}
- (3) 18 m s^{-2}
- (4) 36 m s^{-2}

22. If a SHM is given by equation $y = (\sin \pi t + \cos \pi t) \text{ m}$, then which of the following statements is correct?

- (1) The amplitude of oscillation is 1 m
- (2) The amplitude of oscillation is $\sqrt{2} \text{ m}$
- (3) Particle starts its motion from $y = 0 \text{ m}$
- (4) The period of oscillation is 1 second

23. A pipe open at both ends has a fundamental frequency f in air. The pipe is now dipped vertically in a water drum to half of its length. The fundamental frequency of the air column is now equal to:

- (1) $\frac{f}{2}$
- (2) f
- (3) $\frac{3f}{2}$
- (4) $2f$

24. If frequency of first overtone of a vibrating string is doubled keeping the original tension in the wire constant, then length of string has to be

- (1) Decreased by 25%
- (2) Increased by 25%
- (3) Decreased by 50%
- (4) Increased by 100%

25. Consider the following statements.

Statement A: Velocity of sound in gaseous medium depends on molar mass of gas.

Statement B: Mechanical wave require a material medium for their propagation.

Statement C: Speed of sound is less in humid air.

Which of the statement(s) is/are correct?

- (1) Only statements A and B
- (2) Only statements B and C
- (3) Only statements A and C
- (4) All statements A, B and C

26. A tuning fork produces 5 beats/s with a tuning fork of frequency 246 Hz. The fork of unknown frequency is now loaded with wax and then 5 beats/s are still heard. The frequency of the fork was

- (1) 251 Hz
- (2) 241 Hz
- (3) 246 Hz
- (4) 249 Hz

27. Consider a wave with frequency 300 Hz and speed 350 ms^{-1} . How far apart are two points 60° out of phase?

- (1) $\frac{1}{7} \text{ m}$
- (2) $\frac{36}{7} \text{ m}$
- (3) $\frac{7}{36} \text{ m}$
- (4) 7 m

28. The wavelengths of 60 cm and 61 cm, produces 9 beats/second. The velocity of sound is (approximately)

- (1) 330 m/s
- (2) 335 m/s
- (3) 340 m/s
- (4) 325 m/s

29. The intensity ratio of two interfering waves is 1 : 9. The ratio of intensities of maxima to minima is

- (1) 9 : 1
- (2) 3 : 1
- (3) 25 : 16
- (4) 4 : 1

30. If the fundamental frequency of a pipe closed at one end is 512 Hz. The fundamental frequency of a pipe of the same dimensions but open at both ends will be

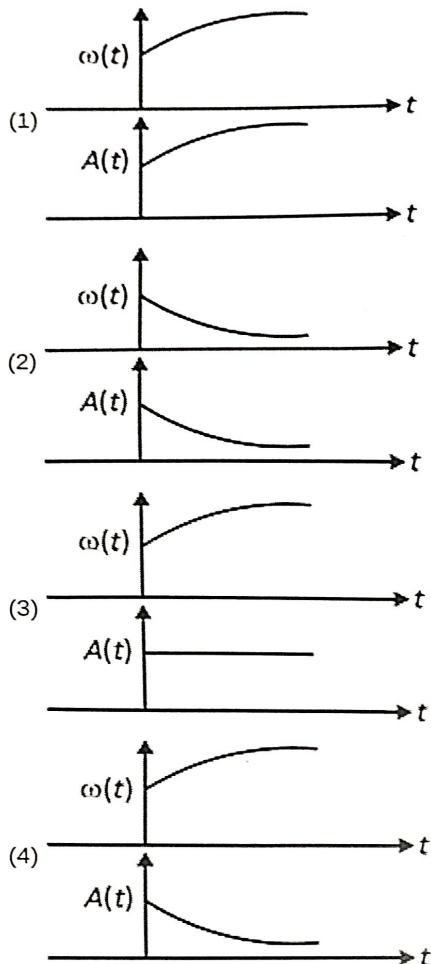
- (1) 1024 Hz
- (2) 512 Hz
- (3) 256 Hz
- (4) 128 Hz

31. Two point charges $+3 \mu\text{C}$ and $x \mu\text{C}$ are placed 12 cm apart. If electric field intensity at 3 cm from $+3 \mu\text{C}$ charge is zero, then value of x will be

- (1) 9 μC
- (2) 27 μC
- (3) 18 μC
- (4) 3 μC

32. An electric dipole, when held at 60° with respect to a uniform electric field of 10^4 N/C, experiences a torque of $\sqrt{3} \times 10^{-24}$ N m. What is dipole moment of the dipole?
- $\sqrt{3} \times 10^{-16}$ C m
 - 4×10^{-21} C m
 - 2×10^{-8} C m
 - 2×10^{-28} C m
33. A point charge situated at a certain distance from an electric dipole on its equatorial line, experiences a force F . If the distance of charge is doubled, the force acting on the charge will be
- $\frac{F}{2}$
 - $\frac{F}{4}$
 - $2F$
 - $\frac{F}{8}$
34. Two similar very small conducting spheres have charges $40 \mu\text{C}$ and $20 \mu\text{C}$ and are at a certain distance apart. Now they are touched and kept at same distance. The ratio of initial force to final force between them is
- 8 : 9
 - 8 : 1
 - 1 : 9
 - 7 : 8
35. In a region electric field is given by $\vec{E} = (2\hat{i} - \hat{j} + \hat{k})$ N/C. The electric flux through a surface $\vec{s} = (\hat{i} + 2\hat{j}) \text{ m}^2$ is given by (in $\frac{\text{N}}{\text{C}} \text{ m}^2$)
- 10
 - 20
 - Zero
 - 5
36. Three point charges $+q$, $-3q$ and $+2q$ are placed in $x-y$ plane at points $(x=0, y=a)$, $(x=0, y=0)$ and $(x=a, y=0)$ respectively. The magnitude and direction of electric dipole moment of the charge system are
- $\sqrt{2}qa$, along positive x -axis
 - $\sqrt{5}qa$, along positive x -axis
 - $\sqrt{5}qa$, at an angle $\theta = \tan^{-1}\left(\frac{1}{2}\right)$ from positive x -axis
 - $\sqrt{5}qa$, at an angle $\theta = \tan^{-1}(2)$ from positive x -axis
37. An electric dipole is placed in an electric field generated by a point charge
- The net electric force on the dipole must be zero
 - The torque on the dipole due to field must be zero
 - The torque on the dipole due to field must be non-zero
 - The torque on the dipole due to field may be zero
38. Four equal free charges Q each are kept at four corners of a square of side l and a charge q_0 is kept at its centre so that whole system is in equilibrium. The charge q_0 is
- $q_0 = -\frac{Q}{3}[1 + 2\sqrt{2}]$
 - $q_0 = -Q[1 + 2\sqrt{2}]$
 - $q_0 = -\frac{Q}{2}[1 + 2\sqrt{2}]$
 - $q_0 = -\frac{Q}{4}[1 + 2\sqrt{2}]$
39. There are three conducting concentric spherical shells having charges Q , $-Q$, $2Q$ respectively as shown in figure. The electric field intensity at point P is (where $OP = 2.5R$)
- $$\left(k = \frac{1}{4\pi\epsilon_0}\right)$$
-
- Zero
 - $\frac{3}{4} \frac{kQ}{R^2}$
 - $\frac{4kQ}{25R^2}$
 - $\frac{kQ}{4R^2}$
40. A particle of mass m is placed in a potential-field, which vary according to position x as $V = (ax^2 + bx)$. The motion of particle is (Where a and b are constants)
- Oscillatory but not S.H.M.
 - Periodic
 - S.H.M. with angular frequency $\sqrt{2b}$
 - S.H.M. with angular frequency $\sqrt{2a}$

41. In an oscillating spring mass system, a spring is connected to a box filled with sand. As the box oscillates, sand leaks slowly out of the box vertically so that the average frequency $\omega(t)$ and average amplitude $A(t)$ of the system change with time t . Which one of the following options schematically depicts these changes correctly?



42. A transverse wave of wavelength λ is moving on a string. The path difference between the points oscillating in same phase cannot be

- (1) λ
- (2) 3λ
- (3) $\frac{3\lambda}{2}$
- (4) 2λ

43. An open organ pipe of length l is sounded together with another open organ pipe of length $(l + x)$ in their fundamental modes. If speed of sound in air is v then number of beats heard per second will be

- (1) $\frac{vz}{2(l^2 + lz)}$
- (2) $\frac{vz^2}{2(l+x)}$
- (3) $\frac{vl^2}{2x}$
- (4) $\frac{vz}{4l^2}$

44. The equation of a wave travelling on a string is given by $y = 4 \sin \frac{\pi}{2} \left(8t - \frac{x}{8} \right)$, the velocity of the wave is (where x and y are in cm and t is in seconds)

- (1) 64 cm/s in $-x$ direction
- (2) 32 cm/s in $-x$ direction
- (3) 64 cm/s in $+x$ direction
- (4) 32 cm/s in $+x$ direction

45. The frequency of 1st overtone of a closed pipe is 60 Hz. The frequency of 3rd overtone of this pipe will be

- (1) 140 Hz
- (2) 120 Hz
- (3) 80 Hz
- (4) 160 Hz

46. Which one of the following aqueous solution will exhibit highest boiling point?
(assume 100% ionization of electrolyte)
- 0.015 m urea
 - 0.01 m KNO_3
 - 0.01 m Na_2SO_3
 - 0.015 m glucose
47. Which of the following liquid pairs shows a positive deviation from Raoult's Law?
- Water – nitric acid
 - Ethanol – acetone
 - Water – hydrochloric acid
 - Acetone – Chloroform
48. The osmotic pressure exerted by a solution prepared by dissolving 18 g of glucose in enough water to make 250 mL solution at 27°C , is
- 9.85 atm
 - 7.21 atm
 - 12.72 atm
 - 6.87 atm
49. The freezing point depression constant for water is $1.86\text{ }^\circ\text{C}\text{ m}^{-1}$. If 5g Na_2SO_4 is dissolved in 45 g H_2O , the freezing point is changed by $-3.82\text{ }^\circ\text{C}$. The van't Hoff factor for Na_2SO_4 is
- 2.63
 - 3.11
 - 3.81
 - 2.05
50. Given below are two statements one is labelled as Assertion (A) and other is labelled as Reason (R).
- Assertion (A):** Azeotropes boil at a constant temperature.
- Reason (R):** The solutions which show a large positive deviation from Raoult's law form minimum boiling azeotrope at a specific composition.
- In the light of above two statements mark the correct statement.
- Both Assertion & Reason are true and the reason is the correct explanation of the assertion
 - Both Assertion & Reason are true but the reason is not the correct explanation of the assertion
 - Assertion is true statement but Reason is false
 - Both Assertion and Reason are false statements
51. Henry's law constant for CO_2 in water is $1.67 \times 10^8\text{ Pa}$ at 298 K . The quantity of CO_2 in 1000 mL of soda water when packed under 1.67 atm CO_2 pressure at 298 K is
- 3.7 g
 - 5.5 g
 - 1.2 g
 - 2.4 g
52. The vapour pressure of two liquids A and B are 100 and 150 torr respectively. The vapour pressure of solution obtained by mixing 3 moles of A and 2 moles of B will be
- 250 torr
 - 120 torr
 - 110 torr
 - 135 torr
53. Molality of an aq. solution of urea having mole fraction 0.2 is
- 9.37 m
 - 24.67 m
 - 17.47 m
 - 13.87 m
54. Given below are the two statements
Statement I : Aquatic species are more comfortable in warm water rather than in cold water.
Statement II : At 303 K temperature, the Henry's law constant of N_2 is higher than that of O_2 .
- In the light of above statements, choose the correct option
- Both statement I and statement II are correct
 - Both statement I and statement II are incorrect
 - Statement I is correct but statement II is incorrect
 - Statement I is incorrect but statement II is correct
55. If 0.2 molal aqueous solution of weak monobasic HA undergoes 40% dissociation then the boiling point of the solution will be (K_b of water = $0.52\text{ K kg mol}^{-1}$)
- 100.14 $^\circ\text{C}$
 - 100.11 $^\circ\text{C}$
 - 100.21 $^\circ\text{C}$
 - 100.25 $^\circ\text{C}$
56. The mixture that forms minimum boiling azeotrope is
- Ethanol – Water mixture
 - Benzene – Toluene mixture
 - Aniline – Acetone mixture
 - Bromoethane – Chloroethane mixture

57. Incorrect thermodynamic property for ideal solution is

- (1) $\Delta_{\text{mix}} H = 0$
- (2) $\Delta_{\text{mix}} G < 0$
- (3) $\Delta_{\text{mix}} S = 0$
- (4) $\Delta_{\text{mix}} V = 0$

58. For $[\text{CrCl}_3 \cdot x\text{NH}_3]$, elevation in boiling point of one molal aqueous solution is equal to that of one molal aqueous solution of glucose, the value of x is

- (1) 3
- (2) 4
- (3) 5
- (4) 6

59. Given below are two statements

Statement I: The tanks used by scuba divers to avoid bends are filled with 11.7% helium, 56.2% nitrogen and 32.1% oxygen.

Statement II: 68% nitric acid and 32% water by mass, with a boiling point of 393.5 K is a maximum boiling azeotrope. In the light of above statements, choose the correct option.

- (1) Both statement I and statement II are correct
- (2) Both statement I and statement II are incorrect
- (3) Statement I is correct but statement II is incorrect
- (4) Statement I is incorrect but statement II is correct

60. Arrange the following aqueous dilute solution in the increasing order of vapour pressure

- (a) 10% (w/v) glucose
- (b) 10% (w/v) sucrose
- (c) 10% (w/v) urea

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

61. Match List I with List II.

List I (Conversion)	List II (Number of Faraday required)
A. 1 mol of H_2O to O_2	I. 3F
B. 1 mol of MnO_4^- to Mn^{2+}	II. 2F
C. 1.5 mol of Ca from molten CaCl_2	III. 1F
D. 1 mol of FeO to Fe_2O_3	IV. 5F

Choose the correct answer from the options given below:

- (1) A-II, B-IV, C-I, D-III
- (2) A-III, B-IV, C-I, D-II
- (3) A-II, B-III, C-I, D-IV
- (4) A-III, B-IV, C-II, D-I

62. Given below are two statements

Statement I: In corrosion, at anode, Fe gets oxidised to Fe^{2+} ion.

Statement II: In corrosion, at cathode, $\text{O}_2(\text{g})$ reduced in presence of H^+ ions into H_2O .

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

- (1) Both statement I and statement II are true
- (2) Statement I is true but statement II is false
- (3) Statement I is false but statement II is true
- (4) Both statement I and statement II are false

63. The standard redox potentials E° of the following half reactions are

Half reactions	E° (Volts)
$\text{MnO}_4^- + 8\text{H}^+ + 5\text{e}^- \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$	1.51
$\text{Sn}^{4+} + 2\text{e}^- \rightarrow \text{Sn}^{2+}$	0.15
$\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 6\text{e}^- \rightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$	1.33
$\text{Ce}^{4+} + \text{e}^- \rightarrow \text{Ce}^{3+}$	1.61

The oxidizing power of the various species in decreasing order is

- (1) $\text{Ce}^{4+} > \text{Cr}_2\text{O}_7^{2-} > \text{Sn}^{4+} > \text{MnO}_4^-$
- (2) $\text{Ce}^{4+} > \text{MnO}_4^- > \text{Cr}_2\text{O}_7^{2-} > \text{Sn}^{4+}$
- (3) $\text{Cr}_2\text{O}_7^{2-} > \text{Sn}^{4+} > \text{Ce}^{4+} > \text{MnO}_4^-$
- (4) $\text{MnO}_4^- > \text{Ce}^{4+} > \text{Sn}^{4+} > \text{Cr}_2\text{O}_7^{2-}$

64. If for the electrochemical cell

$A(s)|A^{2+}(0.1\text{ M})||B^{+}(0.1\text{ M})|B(s)$ the emf is 5 V, then E°_{cell} of the reaction is

- (1) 6.78 V
- (2) 5.03 V
- (3) 2.18 V
- (4) 10.07 V

65. Correct expression for spontaneous cell is

- (1) $\Delta G < 0, E_{\text{cell}} < 0$
- (2) $\Delta G > 0, E_{\text{cell}} > 0$
- (3) $\Delta G < 0, E_{\text{cell}} > 0$
- (4) $\Delta G > 0, E_{\text{cell}} < 0$

66. If standard reduction potential of A^{2+}/A , B^{2+}/B and C^{2+}/C are 0.52 V, -0.14 V and -2.93 V respectively, then reducing power of the metals will be in order of

- (1) $A > C > B$
- (2) $A > B > C$
- (3) $B > A > C$
- (4) $C > B > A$

67. Unit of cell constant is

- (1) cm^{-1}
- (2) Ohm^{-1}
- (3) Ohm cm^{-1}
- (4) Ohm cm

68. If the molar conductivity (Λ_m) of a 0.050 mol L^{-1} solution of a monobasic weak acid is $90\text{ S cm}^2\text{ mol}^{-1}$, its extent (degree) of dissociation will be

[Assume $\Lambda_+ = 349.6\text{ S cm}^2\text{ mol}^{-1}$ and $\Lambda_- = 50.4\text{ S cm}^2\text{ mol}^{-1}$.]

- (1) 0.115
- (2) 0.125
- (3) 0.225
- (4) 0.215

69. Given below are two statements.

Statement I: The conductivity of an electrolytic solution depends on the concentration of the electrolyte, nature of solvent and temperature.

Statement II: Conductivity of an electrolytic solution decreases but molar conductivity increases with decrease in concentration.

In the light of the above statements, choose the correct answer from the option given below.

- (1) Both statement I and statement II are true
- (2) Both statement I and statement II are false
- (3) Statement I is true but statement II is false
- (4) Statement I is false but statement II is true

70. In mercury cell, electrolyte used is

- (1) Paste of HgO and Carbon
- (2) Conc. NaOH
- (3) Conc. H_2SO_4
- (4) Paste of KOH and ZnO

71. If the standard reduction potential for

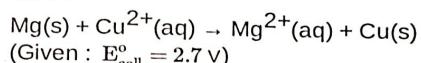
$\text{Fe}^{3+}(\text{aq}) + 3e^- \rightarrow \text{Fe}(\text{s})$ and $\text{Fe}^{3+}(\text{aq}) + e^- \rightarrow \text{Fe}^{2+}(\text{aq})$ are x volt and y volt respectively then the value of E° for Fe^{2+}/Fe will be

- (1) $\frac{3y-x}{2}\text{ V}$
- (2) $\frac{3x-y}{2}\text{ V}$
- (3) $\frac{y-3x}{2}\text{ V}$
- (4) $\frac{x-3y}{2}\text{ V}$

72. Correct order of limiting molar conductivity of given ions at 298 K in water is

- (1) $\text{SO}_4^{2-} > \text{OH}^- > \text{Br}^- > \text{Cl}^-$
- (2) $\text{Br}^- > \text{Cl}^- > \text{OH}^- > \text{SO}_4^{2-}$
- (3) $\text{OH}^- > \text{SO}_4^{2-} > \text{Br}^- > \text{Cl}^-$
- (4) $\text{OH}^- > \text{Br}^- > \text{Cl}^- > \text{SO}_4^{2-}$

73. The equilibrium constant of the given cell reaction at 298 K will be



- (1) $10^{72.1}$
- (2) $10^{82.5}$
- (3) $10^{55.6}$
- (4) $10^{91.5}$

74. If limiting molar conductivity (A_m^*) of a weak electrolyte (AB) is $400 \text{ S cm}^2 \text{ mol}^{-1}$ and molar conductivity of the electrolyte at a given concentration is $25 \text{ S cm}^2 \text{ mol}^{-1}$ then the percentage degree of dissociation of the electrolyte at the given concentration will be

- 12.5%
- 6.25%
- 18.25%
- 25%

75. Reaction that takes place at anode during discharge of lead storage battery is

- $\text{Pb(s)} + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{PbSO}_4 + 2\text{e}^-$
- $\text{PbSO}_4(\text{s}) + 2\text{H}_2\text{O(l)} \rightarrow \text{PbO}_2(\text{s}) + (\text{aq}) + 4\text{H}^+(\text{aq}) + 2\text{e}^-$
- $\text{PbSO}_4(\text{s}) + 2\text{e}^- \rightarrow \text{Pb(s)} + \text{SO}_4^{2-}(\text{aq})$
- $\text{PbO}_2(\text{s}) + \text{SO}_4^{2-}(\text{aq}) + 4\text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{PbSO}_4 + \text{H}_2\text{O}$

76. The emf of cell

$\text{Ni(s)}|\text{Ni}^{2+}(0.16 \text{ M})||\text{Ag}^+(0.002 \text{ M})|\text{Ag(s)}$, at 298 K is ($E_{cell}^\circ = 1.05 \text{ V}$)

- 0.91 V
- +0.46 V
- +0.91 V
- 0.75 V

77. A current of 9.65 ampere flowing for 100 seconds deposit 0.3 g of a metal. The equivalent weight of metal is

- 30
- 45
- 60
- 90

78. Given below are the two statements:

Statement I: Conductivity of iron is more than copper at 298.15 K.

Statement II: CuO acts as a semiconductor.

In the light of above statements, choose the correct answer.

- Statement I is correct but statement II is incorrect
- Statement I is incorrect but statement II is correct
- Both statement I and statement II are correct
- Both statement I and statement II are incorrect

79. If ΔG° value of fuel cell using C_4H_{10} and O_2 is $-2.6 \times 10^6 \text{ J}$, then E° value of cell is

- 2.05 V
- 1.04 V
- 1.85 V
- 2.68 V

80. Match List-I with List-II

List I (Battery)		List-II (Electrolyte)
a. Dry cell	(i)	Concentrated aqueous NaOH solution
b. Lead storage battery	(ii)	Moist paste of NH_4Cl and ZnCl_2
c. Mercury cell	(iii)	38% solution of H_2SO_4
d. $\text{H}_2 - \text{O}_2$ fuel cell	(iv)	Paste of KOH & ZnO

The correct match is

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

81. Consider the following statements

- Mg is better reducing agent than Ca.
- F_2 is better oxidising agent than Cl_2 in aqueous medium.
- $\text{Li}^+(\text{aq})$ has minimum standard reduction potential value.

Correct statement(s) is/are

- (a) and (c) only
- (b) and (c) only
- (a) and (b) only
- (c) only

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

Assertion (A): ClO_4^- does not undergo disproportionation.

Reason (R): Highest oxidation state of Cl is +7 and it is present in ClO_4^- .

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

- Both (A) and (R) are true and (R) is the correct explanation of (A)
- (A) is true but (R) is false
- (A) is false but (R) is true
- Both (A) and (R) are true but (R) is not the correct explanation of (A)

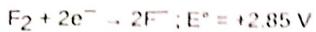
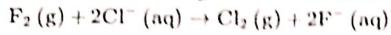
83. Change in oxidation state of chlorine during thermal decomposition of potassium chlorate is

- 1 to 0
- +5 to -1
- +5 to 0
- 1 to +1

84. Moles of $K_2Cr_2O_7$ required to oxidise 0.1 mole of ferric oxalate in acidic medium is

- (1) 0.8
- (2) 0.2
- (3) 0.1
- (4) 1.0

85. On the basis of given standard reduction potential data, EMF of the cell for given cell reaction will be



- (1) 4.21 V
- (2) -4.21 V
- (3) 1.49 V
- (4) -1.49 V

86. If oxidation number of A, B and C is +1, +2 and -2 respectively then possible formula of compound is

- (1) A_2BC_2
- (2) AB_2C_2
- (3) A_2BC
- (4) AB_2C_3

87. Given below are two statements.

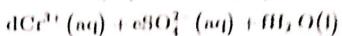
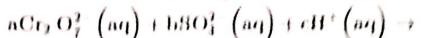
Statement I: Ag will get precipitated on addition of Zn in $AgNO_3$ (aq) solution.

Statement II: Zn is more reactive than Ag in aqueous medium.

In the light of above statements, choose the **correct** option.

- (1) Both statement I and statement II are correct
- (2) Both statement I and statement II are incorrect
- (3) Statement I is correct but statement II is incorrect
- (4) Statement I is incorrect but statement II is correct

88. Consider the following redox reaction



If a , b , c , d , e and f represents the coefficients used for balancing given reaction then **correct ratio of $a:b:c$** is

- (1) 2 : 3 : 7
- (2) 1 : 8 : 3
- (3) 1 : 3 : 8
- (4) 2 : 3 : 8

89. Total number of peroxide linkage(s) in CrO_5 is

- (1) 0
- (2) 1
- (3) 2
- (4) 3

90. The oxidation number of terminal Br in tribromooxazide is

- (1) +4
- (2) +7
- (3) +5
- (4) +6

BOTANY

91. Read the following statements and choose the set of **correct** statements:

In the members of Rhodophyceae,

- Asexual reproduction occurs by non-motile spores.
- Sexual reproduction is by isogamous method only
- Stored food is in the form of carbohydrate which is very similar to amylopectin and glycogen in structure.
- The major pigments found are chlorophyll a, d and phycoerythrin.
- Cell wall is composed of cellulose, pectin and polysulphate esters.

Choose the **correct** answer from the options given below

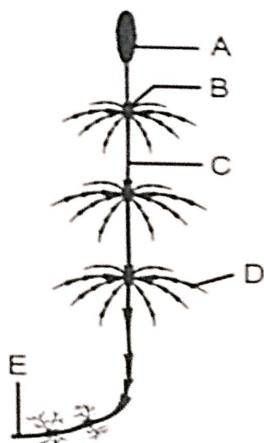
- a, b, c and d only
- b, c, d and e only
- a, c, d and e only
- a, b and e only

92. Match the columns and select the **correct** option.

Column-I	Column-II
a. Bryophytes	(i) Have ovules
b. Gymnosperm	(ii) Few members are heterosporous
c. Algae	(iii) First embryophytes
d. Pteridophytes	(iv) Non archegoniate plants

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

93.



Observe the above diagram and find the **correct** statement.

- E is a type of root
- B is a part of leaf
- A is composed of loosely arranged sporophylls
- Ploidy of cells of C is diploid

94. Read the following statements and state **true (T)** or **false (F)** for them.

- Numerical taxonomy considers hundreds of characters simultaneously.
- Cytotaxonomy is based on information like chromosome number, structure and behaviour.
- Bentham and Hooker are proponents of artificial system of classification.
- Chemotaxonomy is based on chemical constituents of the plants.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(1)	T	T	T
(2)	T	T	F
(3)	T	T	F
(4)	F	F	T

(1) (1)

(2) (2)

(3) (3)

(4) (4)

95. Identify the given figure and select the **correct** option regarding it.



- Does not need water for fertilisation
- Possesses seeds
- Exhibits external fertilisation
- Produces two kinds of spores

96. Select the correctly matched pair.

(1)	Cycas	-	Male and female cones are borne on different trees
(2)	Selaginella	-	Microphyllous leaves and heterosporous
(3)	Funaria	-	A liverwort, used as fuel and as a packing material
(4)	Ulothrix	-	Colonial alga and isogamous

- (1) (1)
- (2) (2)
- (3) (3)
- (4) (4)

97. Select the incorrect statement regarding bryophytes.

- (1) Sex organs are multicellular
- (2) Antheridium produce biflagellate antherozoids
- (3) Archegonium is flask shaped and produce many eggs.
- (4) Gametophyte produce gametes

98. In which of the following algae, gametes are pyriform and bear two laterally attached flagella?

- (1) Ectocarpus and Spirogyra
- (2) Spirogyra and Polysiphonia
- (3) Porphyra and Gelidium
- (4) Ectocarpus and Dictyota

99. Pyrenoids

- (a) Are the storage bodies
- (b) Contain protein besides starch
- (c) Are found only in the members of Rhodophyceae
- (d) Are present in the form of oil droplets

The incorrect ones are

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

100. Which of the following features is shared by all the three classes of algae?

- (1) Vegetative reproduction via fragmentation
- (2) Motile gametes
- (3) Presence of hydrocolloids
- (4) Abundance of fucoxanthin

101. What is common between *Pinus*, *Cedrus*, *Ginkgo* and *Cycas*?

- (1) Absence of branched stem
- (2) Presence of coralloid roots
- (3) Formation of protonema
- (4) Transfer of pollen by air current

102. Statement-A : Mosses along with lichens are the first organisms to colonise rocks.

Statement-B : Mosses are of great ecological importance. Select the correct option regarding the statements A and B.

- (1) Both statements are false
- (2) Statement A is false
- (3) Both statements are true
- (4) Statement B is false

103. Gametophyte does not have free living independent existence in

- (1) *Marchantia*
- (2) *Funaria*
- (3) *Pinus*
- (4) *Sphagnum*

104. Read the following statements and choose the correct option.

Assertion : Natural system of classification classify organisms on the basis of their natural affinities.

Reason : Fossils play important role in natural system of classification to elucidate evolutionary relationship among organisms.

- (1) Both Assertion & Reason are true and the reason is the correct explanation of the assertion.
- (2) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
- (3) Assertion is true statement but Reason is false.
- (4) Both Assertion and Reason are false statements.

105. Lax is

- (1) Compact strobilus or cone in bryophytes
- (2) Sporangium having spores
- (3) Spirally arranged sporophylls along an axis
- (4) Female gametophyte in gymnosperms

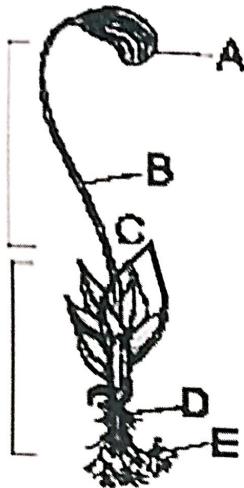
106. Earliest system of classification

- (1) Brought together the closely related species
- (2) Used only gross superficial morphological characters
- (3) Did not give equal weightage to vegetative and sexual characteristics
- (4) Were mainly based on evolutionary relationships

107. Select the correct match.

- (1) *Sargassum* – Carrageen
- (2) *Polysiphonia* – Moss
- (3) *Marchantia* – Have gametophyte that is dependent on sporophyte for nutrition
- (4) *Gracilaria* – Complex post-fertilization development

108. Diagram of *Funaria* is shown below with structures labelled A, B, C, D and E.



Select the **correct** option which includes the structures having ploidy level similar to zygote.

- (1) C, D and E
- (2) A, B and C
- (3) B, C and D
- (4) Only A and B

109. Match List I with List II

List-I	List-II
a. <i>Pinus</i>	(i) Elaborate mechanism of spore dispersal, present in capsule
b. <i>Polysiphonia</i>	(ii) The female gametophytes are retained on the parent sporophytes for variable periods
c. <i>Funaria</i>	(iii) Male and female gametophytes do not have an independent free-living existence
d. <i>Salvinia</i>	(iv) Complex post fertilisation developments and lacks embryo

Choose the **correct** option

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

110. Algin and carrageen are respectively obtained from

- (1) Brown algae and red algae
- (2) The members of Chlorophyceae and Rhodophyceae
- (3) Green algae and brown algae
- (4) Red algae and green algae

111. Pteridophytes differ from bryophytes in

- (1) Lacking true root, stem and leaves
- (2) Being non-photosynthetic
- (3) Having vascular tissues
- (4) Requiring water for fertilisation

112. Consider the following statements w.r.t mosses and select the **correct** option.

- (a) The sporophyte is less elaborate than that of liverworts.
 - (b) Zygote develops into green filamentous structure
 - (c) Sex organs are produced at the apex of the leafy shoots
 - (d) Leafy stage is developed from secondary protonema
- (1) a, b & c are correct
 - (2) only a is incorrect
 - (3) c and d are correct
 - (4) Only d is correct

113. All of the following features of leaves in gymnosperms are to reduce water loss, **except**

- (1) Covering of thick cuticle
- (2) Fan shaped structure
- (3) Sunken stomata
- (4) Needle-like shape

114. In the capsule of *Marchantia*, the spores are

- (1) Haploid and are formed by meiosis
- (2) Diploid and are formed by mitosis
- (3) Haploid and are formed by mitosis
- (4) Transformed into gametes

115. Protonema and prothallus differ from each other as the latter is

- (1) An independent, photosynthetic, gametophytic stage
Developed after spore germination in the terrestrial
- (2) plants that have vascular tissue but do not produce seeds.
- (3) A conspicuous large, multicellular thalloid stage which bears male and female sex organs
- (4) A predominant stage of the life cycle of a moss

116. Coralloid roots

- (1) Have symbiotic association with *Rhizobium* for N₂-fixation
- (2) Have fungal association
- (3) Are associated with N₂-fixing cyanobacteria
- (4) Are found in *Pinus*

117. Read the below given assertion (A) and reason (R) statements and select the **correct** option.

Assertion (A): The pteridophytes include horsetails, ferns and mosses.

Reason (R): Ferns are used as ornamental plants because of their beautiful flowers.

Both Assertion & Reason are true and the reason is the correct explanation of the assertion

Both Assertion & Reason are true but the reason is not the correct explanation of the assertion

(3) Assertion is true statement but Reason is false

(4) Both Assertion and Reason are false statements

118. Which of the given plants provides peat?

- (1) *Marchantia*
- (2) *Chara*
- (3) *Funaria*
- (4) *Sphagnum*

119. Agar is a hydrocolloid obtained from

- (1) *Gelidium*
- (2) *Porphyra*
- (3) *Sargassum*
- (4) *Chlorella*

120. Bryophytes are called amphibians of plant kingdom because

(1) They can live in soil but are dependent on water for sexual reproduction

(2) They can live in water but are dependent on soil for sexual reproduction

(3) They are more differentiated than algae

(4) Their sporophyte can independently grow in damp, humid and shaded localities only

121. Majority of the red algae are found in A with greater concentrations found in the B.

Select the **correct** option for A and B.

- (1) A – Fresh water, B – Warmer areas
- (2) A – Marine water, B – Colder areas
- (3) A – Salt water, B – Colder areas
- (4) A – Marine water, B – Warmer areas

122. In gymnosperms, the reduced male gametophyte which is confined to only limited number of cells is called

- (1) Strobili
- (2) Pollen grain
- (3) Ovule
- (4) Microsprophyll

123. Which of the following has long been used as packing material for trans-shipment of living material?

- (1) *Polytrichum*
- (2) *Sphagnum*
- (3) *Funaria*
- (4) *Marchantia*

124. How many of the following algae have mannitol or laminarin as stored food material?

Fucus, Ulothrix, Porphyra, Sargassum, Gracilaria, Dictyota, Ectocarpus

- (1) 2
- (2) 3
- (3) 5
- (4) 4

125. Which of the given pairs of algae are filamentous?

- (1) *Volvox* and *Ulothrix*
- (2) *Ulothrix* and *Spirogyra*
- (3) *Spirogyra* and *Chlamydomonas*
- (4) *Laminaria* and *Volvox*

126. The event precursor to the seed habit is seen in

- (1) Liverworts
- (2) Pteridophytes
- (3) Algae
- (4) Mosses

127. Pteridophytes do **not** form

- (1) Cones
- (2) Prothallus
- (3) Spores
- (4) Seeds

128. Mycorrhizal association are commonly found in the roots of

- (1) *Pinus*
- (2) *Marchantia*
- (3) *Equisetum*
- (4) *Salvinia*

129.The pteridophyte which does not belong to Pteropsida is

- (1) *Adiantum*
- (2) *Pteris*
- (3) *Equisetum*
- (4) *Dryopteris*

130.The tallest gymnosperm is

- (1) *Cedrus*
- (2) *Pinus*
- (3) *Sequoia*
- (4) *Ginkgo*

131.Select the odd one w.r.t. green algae.

- (1) *Volvox*
- (2) *Chlamydomonas*
- (3) *Chara*
- (4) *Porphyra*

132.Aristotle used simple morphological characters to classify plants into

- (1) Flowering plants and non-flowering plants
- (2) Trees, shrubs and herbs
- (3) Vascular plants and non-vascular plants
- (4) Aquatic plants and terrestrial plants

133.The system of classification given by Linnaeus was

- (1) Artificial system
- (2) Natural system
- (3) Phylogenetic system
- (4) Based on economic uses of plants

134.Vegetative propagation in *Funaria* occurs through

- (1) Fission
- (2) Fragmentation of protonema
- (3) Zoospores
- (4) Flagellated spores

135.Winged pollen grains are present in

- (1) Mustard
- (2) *Cycas*
- (3) *Pinus*
- (4) Wheat

136.Which of the following hormones bind to membrane bound receptors and acts through second messengers?

- (1) Aldosterone
- (2) Androgens
- (3) Estrogens
- (4) Follicle stimulating hormone

137.Hormone that inhibits cellular uptake and utilisation of amino acids is

- (1) Insulin
- (2) Thymosin
- (3) Cortisol
- (4) Aldosterone

138.The 24 hour diurnal rhythm of our body such as the sleep-wake cycle is regulated by the hormone

- (1) Adrenaline
- (2) Melatonin
- (3) Calcitonin
- (4) Prolactin

139.Excessive bone resorption will take place due to hypersecretion of

- (1) PTH
- (2) TCT
- (3) LH
- (4) ACTH

140.In Islet of Langerhans of pancreas, glucagon is produced by

- (1) α -cells
- (2) β -cells
- (3) PP-cells
- (4) δ -cells

141.Melanocyte stimulating hormone in man is released by

- (1) Hypothalamus
- (2) Pars nervosa
- (3) Pars distalis
- (4) Pars intermedia

142. All of the following are differences between neural system and endocrine system, except

- (1) Former provides point to point coordination
- (2) Only former provides homeostasis
- (3) Former provides short-lived coordination
- (4) Former provides rapid coordination

143. The hormones which stimulate erythropoiesis are secreted by all of the given endocrine glands, except

- (1) Adrenal cortex
- (2) Testis
- (3) Thyroid gland
- (4) Parathyroid gland

144. Find the odd one w.r.t. antagonistic pair.

- (1) Epinephrine and norepinephrine w.r.t. lipid breakdown
- (2) Insulin and glucagon w.r.t. blood glucose level
- (3) TCT and PTH w.r.t. blood calcium level
- (4) Angiotensin II and ANF w.r.t. blood pressure

145. Select the function not performed by the hormones of fight or flight.

- (1) Glycogenolysis
- (2) Lipolysis and proteolysis
- (3) Increased respiratory rate
- (4) Pupillary constriction

146. Thyroid hormones play important roles in regulation of all of the following activities, except

- (1) Basal metabolic rate and red blood cell formation
- (2) Blood Ca^{2+} level and activity of osteoblast cells
- (3) Menstrual cycle and activity of gonads
- (4) Differentiation of T-lymphocytes and production of antibodies

147. GnRH is responsible to start and regulate sexual reproduction in human beings. It acts on

- (1) Hypothalamus
- (2) Adenohypophysis
- (3) Neurohypophysis
- (4) Pars intermedia

148. Androgens regulate the male sexual behaviours and are also involved in all of the following functions, except

- (1) Maturation and functions of the male accessory sex organs
- (2) Spermatogenesis
- (3) Erythropoiesis
- (4) Catabolic effects on protein and carbohydrate metabolism

149. Which part of body secretes anti-inflammatory and emergency hormones respectively?

- (1) Thymus and adrenal cortex
- (2) Adrenal cortex and adrenal medulla
- (3) Pineal gland and adrenal medulla
- (4) Adrenal medulla and adrenal cortex

150. Match the columns and select the correct option.

	Column I	Column II
a.	Gastrin	(i) Inhibits gastric secretion
b.	Gastric inhibitory peptide	(ii) Stimulates the secretion of pancreatic enzymes
c.	Secretin	(iii) Stimulates the secretion of water and bicarbonate from pancreas
d.	Cholecystokinin	(iv) Stimulates the secretion of HCl

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

151. Which of the following structures contains several groups of neurosecretory cells called nuclei, which produce hormones?

- (1) Thyroid
- (2) Anterior pituitary
- (3) Hypothalamus
- (4) Thymus

152. An endocrine gland 'X' is a lobular structure located between lungs behind the sternum on the ventral side of aorta. 'X' secretes hormone called 'Y'. Select the correct option w.r.t 'Y'

- (1) Proteinaceous in nature
- (2) Major role is in differentiation of B-lymphocytes
- (3) Inhibits production of antibodies
- (4) Predominantly responsible for humoral immune response mediated by T-lymphocytes

153. Location and number of parathyroid glands in the body are

- (1) 4 parathyroids on the ventral side of thyroid
- (2) 2 pairs of parathyroids on the dorsal side of thyroid.
- (3) 2 Parathyroids on the back side of thyroid
- (4) 4 Parathyroids on the front side of thyroid

154. Read the following and select the **incorrect** statement

- (1) Pars nervosa is under direct neural regulation of hypothalamus
- (2) Goitre can be caused due to hyposecretion as well as hypersecretion of thyroid hormones
- (3) Progesterone and prolactin can be considered synergistic hormones w.r.t. mammary glands
- (4) Diabetes insipidus is characterised by glycosuria and ketonuria

155. How many of the mentioned hormones are not secreted by the organised endocrine glands of our body?

PRL, T₄, ANF, Epinephrine, CCK, Testosterone, Erythropoietin, Thymosin

Choose the **correct** option.

- (1) Three
- (2) Four
- (3) Five
- (4) Two

156. When blood pressure increases, the atrial wall of our heart secretes a peptide hormone called

- (1) ADH
- (2) ACTH
- (3) ANF
- (4) Aldosterone

157. 'X' and 'Y' are hormones, 'X' stimulates the secretion of 'Y' which exerts negative feedback on the cells that secrete 'X'. What happens when the blood level of 'Y' decreases?

- (1) Less 'X' is secreted
- (2) More 'X' is secreted
- (3) Secretion of 'X' stops
- (4) Blood levels of 'X' and 'Y' will continuously decrease

158. Arrange the **correct** sequence of actions in which prolactin acts on the target tissues.

- (A) Binds to membrane-bound receptor
- (B) Generates second messengers
- (C) Biochemical responses
- (D) Physiological responses

Choose the correct option.

- (1) A → B → C → D
- (2) A → C → B → D
- (3) D → C → B → A
- (4) C → A → D → B

159. Hormone released into blood by posterior pituitary gland but synthesized by neurons of hypothalamus is

- (1) Prolactin
- (2) Melatonin
- (3) Oxytocin
- (4) ANF

160. Trophic hormones from the anterior pituitary directly affect the release of which of the following hormones?

- (1) Glucagon
- (2) Melatonin
- (3) Calcitonin
- (4) Thyroxine

161. After kidney transplantation, which of the following hormones could be administered to the patient to prevent graft rejection?

- (1) Mineralocorticoid
- (2) Cortisol
- (3) ADH
- (4) ANF

162. Which of the following hormones is secreted by an endocrine structure that is situated outside the cranium?

- (1) Melatonin
- (2) Vasopressin
- (3) Thymosin
- (4) Oxytocin

163. Assertion (A): Aldosterone helps to maintain body fluid volume and blood pressure.

Reason (R): Aldosterone is the main glucocorticoid which mainly acts on the renal tubules and stimulates the reabsorption of Na⁺ and water.

In the light of above statements, select the **correct** option.

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true, (R) is false
- (4) Both (A) and (R) are false

164. Which of the following is **true** for secretions of endocrine glands?

- (1) Are nutritive chemicals
- (2) Transported to distantly located target organs
- (3) Secreted by organised endocrine glands only
- (4) Produced in large amounts

165. The JG cells of kidney produce a _____ hormone called _____ which stimulates RBC formation.

Select the correct option to fill the respective blanks.

- (1) Peptide, Cholecystokinin
- (2) Peptide, Erythropoietin
- (3) Steroid, Cholecystokinin
- (4) Steroid, Erythropoietin

166. In case, there is an increase in the osmotic concentration of the blood plasma of a person, then, ADH can help in retention of water through interaction with target cells in the

- a. Anterior pituitary
- b. Urinary bladder
- c. Posterior pituitary
- d. DCT of nephron
- e. Collecting duct

Choose the **correct** option.

- (1) a, d and e
- (2) c and d
- (3) b, c and d
- (4) d and e

167. Epinephrine and nor-epinephrine are also known as

- (1) Antidiabetic hormone
- (2) Gametogenic hormone
- (3) Hypoglycemic hormone
- (4) Emergency hormones

168. Read the following statements and choose the **correct** answer.

Statement-A : Small amounts of androgenic steroids are also secreted by the whole adrenal gland which play a role in the growth of axial hair, pubic hair, and facial hair during puberty.

Statement-B : Cortisol is involved in maintaining the cardio-vascular system as well as the kidney functions.

- (1) Both statements A and B are correct
- (2) Both statements A and B are incorrect
- (3) Only statement A is correct
- (4) Only statement B is correct

169. All of the following sets of hormones can increase the blood glucose levels, **except**

- (1) Adrenaline and cortisol
- (2) Glucagon and Epinephrine
- (3) Glucagon and Cortisol
- (4) ACTH and Insulin

170. The release of TSH by feedback mechanism will be prompted in case of

- (1) Hypersecretion of thyroxine
- (2) Hyposecretion of thyroxine
- (3) Hypersecretion of parathormone
- (4) Hyposecretion of parathormone

171. Assertion (A): Parathyroid hormone is a hypercalcemic hormone.

Reason (R): PTH decreases Ca^{2+} absorption from the digested food.

In the light of above statements, select the **correct** option.

- (1) Both (A) and (R) are true and (R) is the correct explanation of the (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

172. The releasing and inhibiting hormones regulate and coordinate the activity of

- (1) Hypothalamus
- (2) Neurohypophysis
- (3) Adenohypophysis
- (4) Epiphysis

173. In humans, the _____ gland is located in a bony cavity called sella tursica and is attached to the _____ by a stalk. Fill in the respective blanks by selecting the **correct** option.

- (1) Thyroid ; pituitary gland
- (2) Pituitary ; hypothalamus
- (3) Pineal ; hypothalamus
- (4) Parathyroid ; pituitary gland

174. Hypersecretion of growth hormone since childhood causes

- (1) Pituitary dwarfism
- (2) Addison's disease
- (3) Gigantism
- (4) Acromegaly

175. Which of the following is **not** considered as a true endocrine gland?

- (1) Adenohypophysis
- (2) Neurohypophysis
- (3) Thymus
- (4) Pineal gland

176. Read the statements given below and identify the true (T) and false (F) statements.

- a. All pituitary hormones are non-steroidal
- b. All ovarian hormones are steroid
- c. Cortisol acts through membrane bound receptors
- d. Thyrocalcitonin is a non-iodised proteinaceous hormone released by thyroid gland

Choose the option which represents the statements as true or false correctly

- (1) a(T), b(T), c(F), d(T)
- (2) a(T), b(F), c(F), d(T)
- (3) a(F), b(T), c(T), d(F)
- (4) a(F), b(F), c(T), d(F)

177. Hormone which is responsible for libido in human males, is secreted from

- (1) Pituitary gland
- (2) Pancreas
- (3) Testes
- (4) Liver

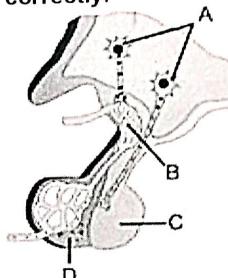
178. Pineal gland is located on the

- (1) Ventral side of forebrain
- (2) Lateral side of forebrain
- (3) Dorsal side of forebrain
- (4) Ventral side of midbrain

179. Which of the following hormones is an iodothyronine?

- (1) Cortisol
- (2) Thyroxine
- (3) Norepinephrine
- (4) Insulin

180. Observe the diagrammatic representation of pituitary gland and its relationship with hypothalamus given below. Choose the option which represents A, B, C and D correctly.



	A	B	C	D
(1)	Hypothalamic neurons	Portal circulation	Posterior pituitary	Anterior pituitary
(2)	Portal circulation	Anterior pituitary	Posterior pituitary	Hypothalamic hormone
(3)	Hypothalamic neurons	Posterior pituitary	Anterior pituitary	Portal circulation
(4)	Anterior pituitary	Posterior pituitary	Hypothalamic neurons	Portal circulation

- (1) (1)
- (2) (2)
- (3) (3)
- (4) (4)