



# Aakash

Medical | IIT-JEE | Foundations

Corporate Office : AESL, 3rd Floor, Incuspaze Campus-2, Plot-13, Sector-18, Udyog Vihar, Gurugram, Haryana-122018

## MOCK TEST for NEET-2025

MM : 720

Test - 3

Time : 3 Hrs.

Complete Syllabus of class XI & XII

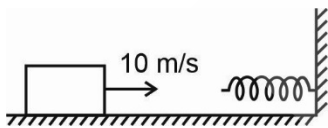
### Instructions :

- 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.
- 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

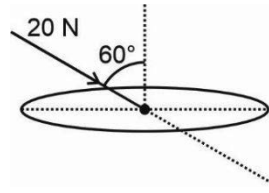
- In the expression for force ( $F$ ),  $F = \frac{at^2 + b}{c}$ , if  $t$  is time, then dimension of  $\frac{a}{b}$  are
  - $[MLT^{-2}]$
  - $[ML^0T^{-2}]$
  - $[ML^2T^{-2}]$
  - $[M^0L^0T^{-2}]$
- The given graph is for a particle projected upwards from a height of 40 m. The initial velocity of the particle is ( $g = 10 \text{ m/s}^2$ )
  - 20 m/s
  - 40 m/s
  - 80 m/s
  - 10 m/s
- A bullet is fired horizontally from a 20 m high tower. If the speed of bullet is 100 m/s then how far from the foot of tower will it land? (Take  $g = 10 \text{ m/s}^2$ )
  - 20 m
  - 80 m
  - 160 m
  - 200 m
- A particle moves in a circular path of radius 2 m such that its uniform angular speed is 4 rad/s. The ratio of its tangential acceleration and centripetal acceleration is
  - Zero
  - Infinite
  - 4 : 1
  - 8 : 3
- Two blocks of mass 4 kg and 2 kg kept one over the other on a smooth horizontal surface as shown below. If coefficient of friction between both blocks is 0.4 then the maximum force ( $F$ ) for which they will move together will be ( $g = 10 \text{ m/s}^2$ )
  - 4 N
  - 8 N
  - 16 N
  - 24 N

6. A stone of mass 200 g is tied to a 1 m long string and is whirled in a vertical circle such that it just completes the vertical circle, then ( $g = 10 \text{ m/s}^2$ )
- (1) Tension at the highest point will be 2 N
  - (2) Tension at the lowest point will be 12 N
  - (3) Speed at the lowest point will be 10 m/s
  - (4) Speed at the highest point will be zero
7. Moment of inertia of a ring of mass  $m$  and diameter  $d$  about an axis passing through its centre and perpendicular to its plane is
- (1)  $md^2$
  - (2)  $2md^2$
  - (3)  $\frac{md^2}{2}$
  - (4)  $\frac{md^2}{4}$
8. The correct relation between torque ( $\tau$ ) and angular momentum ( $L$ ) is (Symbols have usual meanings)
- (1)  $\tau = \vec{r} \times \vec{L}$
  - (2)  $\vec{L} = \frac{d\vec{\tau}}{dt}$
  - (3)  $\Delta\vec{L} = \int \vec{\tau} \cdot dt$
  - (4)  $\vec{L} = \vec{r} \times \vec{\tau}$
9. A block of mass 250 g pushed towards a spring connected to a smooth platform with a speed of 10 m/s. If the spring constant of spring is 100 N/m, then the maximum compression in the spring will be

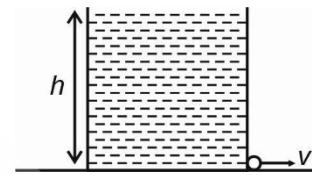


- (1) 20 cm
  - (2) 25 cm
  - (3) 40 cm
  - (4) 50 cm
10.  $P$  is a point at a distance  $r$  from the centre of a spherical shell of mass  $M$  and radius  $a$ , where  $r < a$ . The gravitational potential at  $P$  is
- (1)  $-\frac{GM}{r}$
  - (2)  $-\frac{GM}{a}$
  - (3)  $-\frac{GMr}{a^2}$
  - (4)  $-\frac{GM(a-r)}{a^2}$
11. The CGS unit of strain is
- (1) dyne/cm<sup>2</sup>
  - (2) dyne/cm
  - (3) N/m<sup>2</sup>
  - (4) No unit

12. A force of 20 N acts on a surface of area 40 cm<sup>2</sup> as shown below. The pressure exerted by this force is

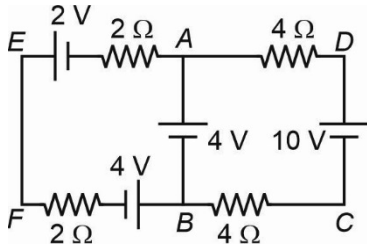


- (1) 1 kPa
  - (2) 2.5 kPa
  - (3) 5 kPa
  - (4) 10 kPa
13. From a container having liquid of density ' $\rho$ ' upto height  $h$ , water comes out from an orifice made at its bottom (Area of cross-section =  $a$ ). The initial thrust experienced by the container is

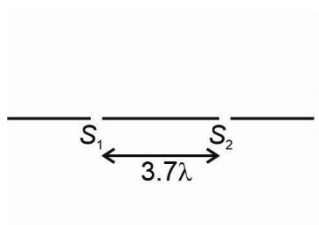


- (1)  $2gha\rho$
  - (2)  $\frac{gha\rho}{2}$
  - (3)  $2gha^2\rho$
  - (4)  $2gha\rho^2$
14. One mole of an ideal diatomic gas undergoes an adiabatic expansion where its temperature changes from 500 K to 300 K, the work done by gas in this process is
- (1) 250R
  - (2) 100R
  - (3) 500R
  - (4) 750R
15. Motion of a particle executing SHM is expressed as  $\frac{d^2x}{dt^2} + \frac{x}{16} = 0$  (in SI units)
- For an amplitude of 40 cm the maximum particle speed is
- (1) 4 m/s
  - (2) 0.4 m/s
  - (3) 1 m/s
  - (4) 0.1 m/s
16. A metallic wire of length 2 m is stretched by a tension corresponding to 10 kg weight. If mass of wire is 20 gram then the frequency of fundamental node formed will be
- (1) 25 Hz
  - (2) 50 Hz
  - (3) 75 Hz
  - (4) 100 Hz

17. Consider the following circuit and find the value of current flowing across  $AB$ .



- (1) 1.75 A                      (2) 2.5 A  
 (3) 3.25 A                      (4) 0.75 A
18. A particle of mass ' $m$ ' and charge ' $q$ ' enters a transverse uniform magnetic field  $B$ . In light of the given information choose the incorrect statement.
- (1) Its velocity remains same  
 (2) Its kinetic energy remains same  
 (3) Work done by magnetic field on it is zero  
 (4) Its momentum keeps changing
19. The magnetic susceptibility of a magnetic substance is 1000, its relative permeability is
- (1) 999                              (2) 1001  
 (3) 99.9                            (4) -1000
20. To convert a galvanometer into an ammeter one should connect a
- (1) High resistance in series with galvanometer  
 (2) Low resistance in series with galvanometer  
 (3) High resistance in parallel with galvanometer  
 (4) Low resistance in parallel with galvanometer
21. The power factor of an LR circuit operating at AC source of frequency  $f$  is
- (1)  $\frac{R}{2\pi fL}$                       (2)  $\frac{R}{\sqrt{(2\pi fL)^2 + R^2}}$   
 (3)  $\frac{R}{\sqrt{R + 2\pi fL}}$               (4) Zero
22. In a modified set-up of YDSE (as shown). The total number of minima, that can be formed on screen using a light of wavelength  $\lambda$ , are

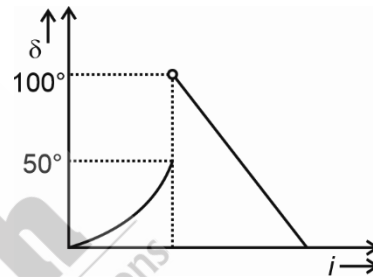


- (1) 6                                  (2) 8  
 (3) 7                                  (4) 9

23. Consider the following statements and choose the correct option.

- a. Mass defect in nucleus is proportional to its nuclear binding energy.  
 b. Binding energy per nucleon of a nucleus decides its stability.
- (1) Only a is correct  
 (2) Only b is correct  
 (3) Both a and b are correct  
 (4) Both a and b are incorrect

24. For a light ray moving from denser to rarer medium a graph of angle of incidence vs angle of deviation is plotted as shown. Critical angle of the pair of media is



- (1) 30°                              (2) 40°  
 (3) 50°                              (4) 100°

25. The cut off wavelength for a continuous X-ray beam coming from an x-ray tube operating at 40 kV is

- (1) 0.31 pm  
 (2) 0.31 Å  
 (3) 0.62 pm  
 (4) 0.62 Å

26. If  $v$  is speed,  $r$  is radius and  $g$  is acceleration due to gravity, then which of the following is dimensionless?

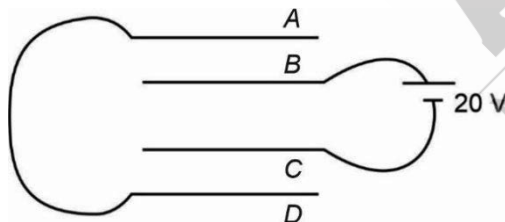
- (1)  $\frac{v^2 r}{g}$                               (2)  $\frac{v^2 g}{r}$   
 (3)  $\frac{v^2}{rg}$                                 (4)  $v^2 rg$

27. The interference pattern is obtained with two coherent light sources of intensity ratio 4. In the

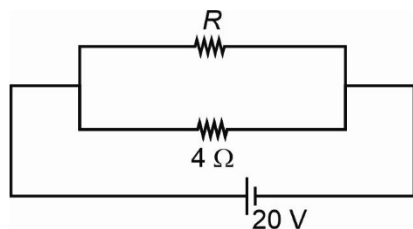
interference pattern, ratio  $\frac{I_{\max} - I_{\min}}{I_{\max}}$  will be

- (1) 4 : 3                              (2) 1 : 9  
 (3) 8 : 9                              (4) 5 : 4

28. Intensity of magnetisation of a magnetic specimen is basically the magnetic moment developed per unit volume. Its SI unit is  
 (1)  $A\ m^2$  (2)  $Tm\ A^{-1}$   
 (3)  $A\ m^{-1}$  (4)  $TA\ m^{-1}$
29. In a plane electromagnetic wave the electric field oscillates sinusoidally at a frequency of  $2 \times 10^{10}$  Hz and amplitude of 48 V/m. The frequency of oscillation of magnetic field will be  
 (1)  $2 \times 10^8$  Hz (2)  $16 \times 10^{10}$  Hz  
 (3)  $2 \times 10^{10}$  Hz (4)  $16 \times 10^8$  Hz
30. The capacity of a parallel plate capacitor depends on  
 (1) The metal used to make the plate  
 (2) The thickness of the plates  
 (3) The potential applied across the plates  
 (4) The separation between the plates
31. The magnifying power of an astronomical telescope for normal adjustment is 10 and the length of telescope is 110 cm. The magnifying power of the telescope when image is formed at the least distance of distinct vision is  
 (1) 14 (2) 48  
 (3) 28 (4) 52
32. There are four identical metal plates each of area A. The plates are placed at equal distance 'd' successively as shown in figure. If  $\frac{\epsilon_0 A}{d} = 10\ \mu F$  then equivalent capacity of the arrangement is

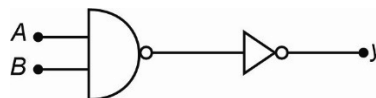


- (1)  $15\ \mu F$  (2)  $7.5\ \mu F$   
 (3)  $22.5\ \mu F$  (4)  $45\ \mu F$
33. If in the circuit given below, total power dissipated is 300 W, then value of R is



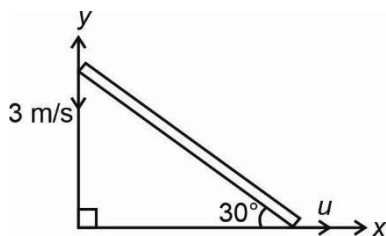
- (1)  $1\ \Omega$  (2)  $3\ \Omega$   
 (3)  $4\ \Omega$  (4)  $2\ \Omega$

34. Mutual inductance of a pair of coils is 0.8 H. If a current in the primary coil changes from 0.6 A to zero in 0.1 s then average induced emf in the secondary coil will be  
 (1) 4.8 V (2) 48 V  
 (3) 24 V (4) 2.4 V
35. A ray of light strikes a glass plate at an angle of  $30^\circ$  with the glass surface. If the reflected and refracted rays are at right angles to each other then the refractive index of the glass is  
 (1) 1.5 (2) 1.41  
 (3) 1.7 (4) 1.33
36. Which of the following quantities increase when wavelength of light incident on optical system is increased? (Consider only magnitudes)  
 (1) Power of a converging lens  
 (2) Focal length of a converging lens  
 (3) Focal length of a diverging lens  
 (4) Both (2) and (3)
37. The work functions of sodium and copper are 2.0 eV and 4.0 eV respectively. Which metal will be suitable for a photoelectric cell using light of wavelength  $4600\ \text{\AA}$ ?  
 (1) Sodium  
 (2) Copper  
 (3) Both (1) and (2)  
 (4) Neither (1) nor (2)
38. The energy of an electron of  $He^+$  in the ground state is  $-54.4$  eV, then the energy of an electron of  $Li^{++}$  in the first excited state will be  
 (1) 27.2 eV  
 (2)  $-30.6$  eV  
 (3)  $-27.2$  eV  
 (4)  $-81.3$  eV
39. Following diagram performs the logic function of



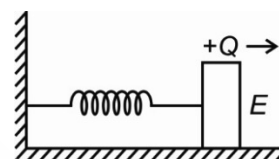
- (1) OR gate (2) NAND gate  
 (3) NOR gate (4) AND gate
40. If  $y_1 = \bar{A} + A$  and  $y_2 = A \cdot \bar{A}$  then value of  $y_1 + y_2$  in Boolean algebra is  
 (1) 1 (2) Zero  
 (3) A (4)  $\bar{A}$

41. Nuclear reactions obey the law of conservation of
- (1) Charge
  - (2) Momentum
  - (3) Mass-energy
  - (4) All of these
42. Standing waves are produced in a 10 m long stretched string fixed at both ends. If the string vibrates in 5 segments and the wave velocity is 20 m/s, then the frequency of vibration is
- (1) 6 Hz
  - (2) 15 Hz
  - (3) 5 Hz
  - (4) 8 Hz
43. The rod as shown in the figure starts slipping at the instant when speed of upper end is 3 m/s and rod makes an angle of  $30^\circ$  with x-axis, speed of the lower end ( $u$ ) of the rod at this instant is



- (1) 3 m/s
- (2)  $\sqrt{3}$  m/s
- (3) 2 m/s
- (4)  $\sqrt{2}$  m/s

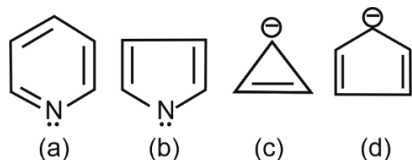
44. The frequency of fundamental tone in a closed pipe is
- (1) Same as the fundamental frequency of an open tube of same length
  - (2) Half the frequency of fundamental tone of open tube of same length
  - (3) Same as that of the first overtone of an open tube of same length
  - (4) Double the frequency of fundamental tone of open tube of same length
45. A spring-block system undergoes a simple harmonic motion on smooth horizontal surface. The block is now given some positive charge  $Q$  and a uniform horizontal electric field to the right is switched on. As a result



- (1) The time period of oscillation will increase
- (2) The time period of oscillation will remain unaffected
- (3) The mean position of simple harmonic motion will shift to the right
- (4) Both (2) and (3)

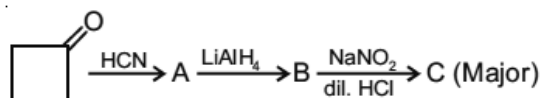
### CHEMISTRY

46. If mass percentage of urea in aqueous solution is 15% then molality of urea in the solution is
- (1) 3.25 m
  - (2) 6.15 m
  - (3) 1.5 m
  - (4) 2.94 m
47. Correct order of electron affinity of the given elements is
- (1)  $F > Cl > O > S$
  - (2)  $Cl > F > S > O$
  - (3)  $Cl > F > O > S$
  - (4)  $F > Cl > S > O$
48. Which among the following compounds are aromatic in nature?

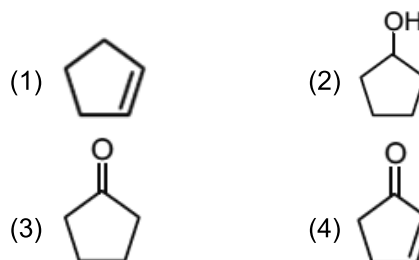


- (1) (a) and (b) only
- (2) (a), (b) and (c) only
- (3) (b), (c) and (d) only
- (4) (a), (b) and (d) only

49. Consider the following sequence



Major product C is



50. For which of the following reactions,  $K_P = K_C$ ?
- (1)  $H_2(g) + Cl_2(g) \rightleftharpoons 2HCl(g)$
  - (2)  $N_2(g) + 2O_2(g) \rightleftharpoons 2NO_2(g)$
  - (3)  $2NaHCO_3(g) \rightleftharpoons Na_2CO_3(s) + CO_2(g) + H_2O(aq)$
  - (4)  $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$

51. A current of 2.0 ampere is passed for 5 hours through a molten salt of tin to deposit 22.2 g tin. The oxidation state of tin in its salt is

(At. wt. of tin = 119 g)

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

52. pH of an aqueous solution of sodium acetate can be calculated as

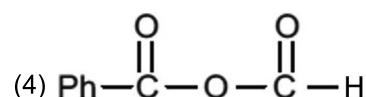
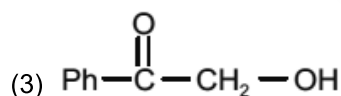
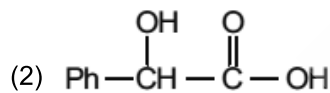
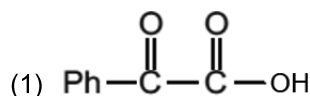
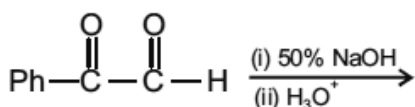
(1)  $\text{pH} = 7 + \frac{1}{2}[\text{pK}_a + \log c]$

(2)  $\text{pH} = 7 - \frac{1}{2}[\text{pK}_b + \log c]$

(3)  $\text{pH} = 7 + \frac{1}{2}[\text{pK}_a + \text{pK}_b]$

(4)  $\text{pH} = 7 - \frac{1}{2}[\text{pK}_a + \text{pK}_b]$

53. Major product of the given reaction is



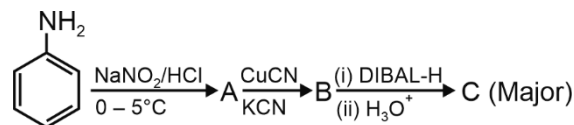
54. Which among the following is an incorrect statement?

- (1) Ionic radius of  $\text{Co}^{2+}$  is smaller than  $\text{Cr}^{2+}$   
(2) Manganese cannot show +5 oxidation state  
(3) Co can form complex with CO  
(4) Enthalpy of hydration of  $\text{Fe}^{2+}$  is higher than  $\text{Mn}^{2+}$

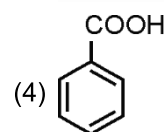
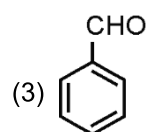
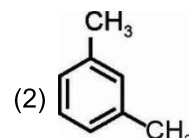
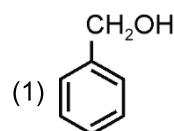
55. 99% of a first order reaction is completed in 32 minutes. Time required for 99.9% completion is

- (1) 50 minutes  
(2) 46 minutes  
(3) 48 minutes  
(4) 64 minutes

56. Consider the following reaction.



Major product C is



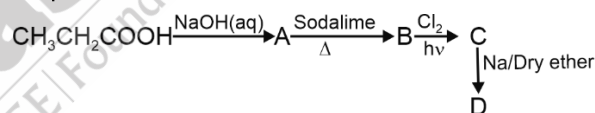
57. Most basic compound among the following is

- (1)  $\text{Er}(\text{OH})_3$  (2)  $\text{Gd}(\text{OH})_3$   
(3)  $\text{Sm}(\text{OH})_3$  (4)  $\text{Ce}(\text{OH})_3$

58. Correct order of decreasing field strength of the given ligands is

- (1)  $\bar{\text{C}}\text{N} > \text{CO} > \text{en}$  (2)  $\text{CO} > \bar{\text{C}}\text{N} > \text{en}$   
(3)  $\text{en} > \text{CO} > \bar{\text{C}}\text{N}$  (4)  $\text{CO} > \text{en} > \bar{\text{C}}\text{N}$

59. The major product (D) in the following reaction sequence is



- (1) Butane (2) But-2-ene  
(3) Ethene (4) Ethyne

60. The extensive property among the following is

- (1) Heat capacity  
(2) Boiling point  
(3) Viscosity  
(4) Density

61. Consider the following statements.

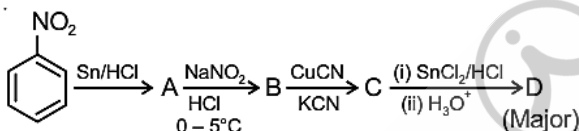
**Statement I** : Isotonic solutions have same osmotic pressure at a given temperature.

**Statement II** : Reverse osmosis occurs when pressure smaller than osmotic pressure is applied to the solution side.

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

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

62. The species having highest bond order is
- (1)  $O_2^-$  (2)  $N_2^+$   
 (3)  $NO^+$  (4)  $NO$
63. The catalyst used in the Ostwald's process for the manufacture of  $HNO_3$  is
- (1)  $Cr_2O_3$  (2)  $FeO$   
 (3)  $V_2O_5$  (4) Platinised asbestos
64. The metal carbonyl which reduced easily is
- (1)  $V(CO)_6$  (2)  $Cr(CO)_6$   
 (3)  $Fe(CO)_5$  (4)  $Ni(CO)_4$
65. Which of the following relations is incorrect?
- (1)  $\Delta S_{total} = 0$  [for adiabatic reversible process]  
 (2)  $\Delta G = \Delta G^\circ = 0$  (when  $Q_c = K_c = 1$ )  
 (3)  $w = 2.303 RT \log \frac{V_f}{V_i}$  (for isothermal expansion of an ideal gas)  
 (4)  $w_{adiabatic} = nC_v(T_f - T_i)$
66. Consider the following reaction.

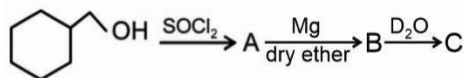


Major product D is

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

67. Consider the following statements.
- Statement-I:** Methoxy group is ortho, para directing and deactivates the aromatic ring towards electrophilic substitution reactions.
- Statement-II:** The  $-OH$  group attached to benzene ring activates the aromatic ring towards electrophilic substitution reactions.
- In light of above two 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 and statement II is incorrect  
 (4) Statement I is incorrect and statement II is correct

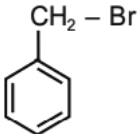
68. Consider the following reactions.



Product C is

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

69. Which among the following pair are globular proteins?
- (1) Keratin and insulin  
 (2) Insulin and albumins  
 (3) Keratin and myosin  
 (4) Albumins and keratin
70. Correct order of covalent character of given halides is
- (1)  $AlF_3 > AlCl_3 > AlBr_3$  (2)  $AlCl_3 > AlBr_3 > AlF_3$   
 (3)  $AlF_3 > AlBr_3 > AlCl_3$  (4)  $AlBr_3 > AlCl_3 > AlF_3$
71. Mole of thiosulphate ions required to react completely with one mole of permanganate ion in faintly alkaline medium is
- (1)  $\frac{2}{5}$  (2)  $\frac{2}{3}$   
 (3)  $\frac{3}{8}$  (4)  $\frac{3}{7}$
72. Cellulose is composed of
- (1)  $\alpha$ -D-glucose units (2)  $\beta$ -D-glucose units  
 (3)  $\beta$ -D-galactose units (4)  $\beta$ -D-fructose units
73. Consider the following statements.
- Statement I :** Boron is unable to form  $BF_6^{3-}$  ion.
- Statement II :**  $AlCl_3$  achieves stability by forming a dimer.
- In the light of above two statements, choose the correct option.
- (1) Statement I is correct and statement II is incorrect  
 (2) Both statement I and statement II are incorrect  
 (3) Both statement I and statement II are correct  
 (4) Statement I is incorrect and statement II is correct

74. Number of mole of  $\text{CO}_2$  produced on heating 20 g of  $\text{CaCO}_3(\text{s})$ , given that  $\text{CaCO}_3$  is only 75% pure is
- (1)  $\frac{1}{20}$  (2)  $\frac{3}{20}$   
 (3)  $\frac{3}{10}$  (4)  $\frac{2}{23}$
75. Phosphonic acid has
- (1) Two P = O bonds  
 (2) Two P – H bonds  
 (3) Two P – OH bonds  
 (4) One P – O – P bond
76. Hybridizations of atoms in the following compound in the sequence are
- $$\text{CH}_2=\text{CH}-\dot{\text{N}}\text{H}-\text{CH}=\text{CH}-\dot{\text{N}}\text{H}_2$$
- (1) (2) (3) (4) (5) (6)
- (1)  $sp, sp^2, sp, sp^2, sp, sp^2$   
 (2)  $sp^2, sp^2, sp^3, sp^2, sp^2, sp^3$   
 (3)  $sp, sp^2, sp^3, sp, sp^2, sp^3$   
 (4)  $sp^2, sp^2, sp^2, sp^2, sp^2, sp^2$
77. Given below are four compounds.
- I.  $\text{CH}_2=\text{CH}-\text{Br}$  II.  $\text{CH}_2=\text{CH}-\text{CH}_2-\text{Br}$
- III.  IV.  $\text{CH}_3-\text{CH}_2-\text{Br}$
- Correct order of  $\text{S}_{\text{N}}1$  reactivity of above compounds is
- (1) III > II > IV > I (2) II > III > IV > I  
 (3) I > II > III > IV (4) III > IV > II > I
78. The group reagent for the test of alcohols is
- (1) Ceric ammonium nitrate  
 (2) Baeyer's reagent  
 (3) Ferric chloride  
 (4) Tollens' reagent
79. DNA does not contain
- (1) Adenine  
 (2) Guanine  
 (3) Cytosine  
 (4) Uracil
80. Number of oxygen atom(s) shared per  $\text{SiO}_4^{4-}$  unit in a pyrosilicate is
- (1) 1 (2) 2  
 (3) 3 (4) 4
81. The ratio of orbital angular momentum of electrons having  $l = 2$  and  $l = 3$  respectively will be
- (1) 2 : 1  
 (2) 1 : 2  
 (3)  $\sqrt{2} : 1$   
 (4)  $1 : \sqrt{2}$
82. Maximum moles of  $\text{Fe}^{2+}$  that can be oxidised by 2 moles of dichromate ions in acidic medium is
- (1) 1 (2) 3  
 (3) 6 (4) 12
83. Which ion gives blood red colour with potassium thiocyanate?
- (1)  $\text{Cd}^{2+}$  (2)  $\text{Cu}^{2+}$   
 (3)  $\text{Fe}^{3+}$  (4)  $\text{Sn}^{2+}$
84.  $\text{Na}_2\text{SO}_4 \cdot x\text{H}_2\text{O}$  on heating loses 55.9% of its weight, value of x is
- (1) 2 (2) 5  
 (3) 6 (4) 10
85. IUPAC name of  $\text{CH}_3\text{O}-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$  is
- (1) 1-Methoxypropane  
 (2) Methoxyisopropane  
 (3) Isopropoxymethane  
 (4) 2-Methoxypropane
86. On monochlorination of 2-Methyl butane, the total number of optically active compounds formed is
- (1) 2 (2) 4  
 (3) 6 (4) 8
87. Following are the two statements one is labelled as assertion (A) and other is labelled as reason (R).
- Assertion (A):** Pressure does not have any significant effect on solubility of solids in liquids.  
**Reason (R):** Solids and liquids are highly incompressible and remain unaffected by changes in pressure.
- In the light of above statements, choose the correct option.
- (1) (A) is correct and (R) is incorrect  
 (2) (A) is incorrect and (R) is correct  
 (3) Both (A) and (R) are correct and (R) is the correct explanation of (A)  
 (4) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

88. Match the compounds given in list I with their shapes given in list II and identify the correct code.

	List I		List II
a.	PCl <sub>5</sub>	(i)	Bent
b.	SO <sub>2</sub>	(ii)	T-shaped
c.	SF <sub>6</sub>	(iii)	Trigonal bipyramidal
d.	ClF <sub>3</sub>	(iv)	Octahedral

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

89. Match the column I of ions with column II containing their spin only magnetic moment and choose the correct option.

	Column I (Ions)		Column II (Magnetic moment in BM)
a.	Sc <sup>3+</sup>	(i)	1.73
b.	Ti <sup>3+</sup>	(ii)	0
c.	Ti <sup>2+</sup>	(iii)	3.87
d.	V <sup>2+</sup>	(iv)	2.84

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

90. Following are the two statements labelled as assertion (A) and reason (R).

**Assertion (A):** Boiling point of pentane is higher than 2,2-Dimethylpropane.

**Reason (R):** Among isomeric alkanes, molecules becomes spherical with the increase in branching resulting in decrease in van der Waal forces of attraction.

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

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

## BOTANY

91. Identify the statements which is **not** true for the cellular structure in which both light and dark reactions of photosynthesis occur.

- (1) It has flat membranous tubules connecting the thylakoids of different grana  
 (2) Chlorophyll pigments are present in dissolved state in its stroma  
 (3) Its inner membrane is relatively less permeable to substance than outer membrane  
 (4) Stroma contains enzyme required for the synthesis of carbohydrates and proteins

92. *Paramecium* differs from *Trypanosoma* as the former

- (1) Causes sleeping sickness disease  
 (2) Has two types of nuclei  
 (3) Captures their prey by putting out their pseudopodia  
 (4) Causes a disease which has a staggering effect on human population

93. Select the **incorrect** match.

- (1) Psilopsida – *Psilotum*  
 (2) Lycopsida – *Selaginella*  
 (3) Pteropsida – *Dryopteris*  
 (4) Sphenopsida – *Adiantum*

94. Read the following statements and state true (T) or false (F) w.r.t. chromosomal disorders.

- A. Rudimentary ovaries can be observed in individuals suffering from Turner's syndrome.  
 B. Klinefelter's syndrome is a result of trisomy.  
 C. Failure of segregation of chromatids during cell division results in the gain or loss of a single chromosome results in polyploidy.  
 D. Individuals afflicted with Turner's syndrome exhibits many loops on finger tips.  
 E. Significant development of breasts is found in individuals afflicted with Turner's syndrome.

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

95. Which of the following pairs belongs to the same taxonomic category?
- (1) Hominidae and Primata
  - (2) Diptera and Insecta
  - (3) Dicotyledonae and Muscidae
  - (4) Poales and Sapindales
96. Consider the following floral characteristics.
- a. Gynoecium have axile placentation.
  - b. Corolla have valvate aestivation.
  - c. Gynoecium occupies the highest position while other floral parts are situated below it.
  - d. Carpels are fused.
- Which of the given characters is/are **true** for the flowers of that plant which produces colchicine?
- (1) a, b and c only
  - (2) a, c and d only
  - (3) c only
  - (4) b and d only
97. In which of the following plants, ovary becomes two-chambered due to false septum?
- (1) *Argemone*
  - (2) *Dianthus*
  - (3) *Primrose*
  - (4) Pea
98. Match the list I with list II.
- | List I  | List II                  |
|---|--------------------------|
| (A) Commonly found in the fruit walls of nuts                     | (i) Collenchyma          |
| (B) It provides mechanical support to the growing parts of plants | (ii) Meristematic tissue |
| (C) This plant tissue have different types of cells               | (iii) Sclereids          |
| (D) Has cells with active cell division                           | (iv) Vascular tissue     |
- Select the **correct** answer from the options given below.
- | A         | B     | C    | D     |
|-----------|-------|------|-------|
| (1) (iii) | (iv)  | (i)  | (ii)  |
| (2) (iii) | (i)   | (iv) | (ii)  |
| (3) (iv)  | (iii) | (i)  | (ii)  |
| (4) (iv)  | (i)   | (ii) | (iii) |
99. Which of the following are components of ribosomes?
- (1) DNA, RNA and proteins
  - (2) Proteins and tRNA
  - (3) Proteins and DNA
  - (4) rRNA and proteins
100. Select the **correct** set of cell organelles which do **not** contain deoxyribonucleic acid.
- (1) Mitochondria and chloroplast
  - (2) Lysosome and vacuole
  - (3) Chloroplast and nucleus
  - (4) Ribosome and mitochondria
101. Select the **odd** one out w.r.t. features of liverworts
- (1) Plant body is thalloid.
  - (2) Sporophyte is the main plant body
  - (3) Asexual reproduction takes place by fragmentation
  - (4) Spores produced within the capsule germinate to form free-living gametophyte.
102. During replication, the two strands of DNA is not separated in its entire length because,
- (1) It requires more than one origin of replication
  - (2) It requires very high energy
  - (3) DNA polymerase polymerises only in one direction
  - (4) There is formation of lagging strands only
103. Which of the given chromosomes are said to be heterobrachial?
- a. Metacentric chromosome
  - b. Sub-metacentric chromosome
  - c. Acrocentric chromosome
  - d. Telocentric chromosome
- (1) a and b
  - (2) b and c
  - (3) a and c
  - (4) a and d
104. During transcription, the enzyme that facilitate the opening of DNA helix is
- (1) DNA gyrase
  - (2) DNA ligase
  - (3) RNA polymerase
  - (4) DNA polymerase
105. Which of the given events occur during S-phase of cell cycle?
- a. DNA replication
  - b. Tubulin protein synthesis
  - c. Duplication of centrioles
  - d. Duplication of Golgi body
- (1) a and b
  - (2) a and c
  - (3) b and d
  - (4) b and c

106. Select the **incorrect** statement w.r.t. root cap.

- (1) It is a thimble-like structure
- (2) It is unicellular
- (3) It protects the tender apex of root
- (4) It is made up of parenchymatous cells

107. All enzymes w.r.t. Krebs' cycle are soluble in mitochondrial matrix, **except** one enzyme that

- (1) Is found in the inter-membrane space of mitochondria
- (2) Catalyses a reaction in TCA cycle, during which FAD molecule is reduced to FADH<sub>2</sub>
- (3) Converts Succinyl CoA to Succinic acid
- (4) Is found attached to outer membrane of mitochondria

108. Match the given columns w.r.t. various events in mitosis and select the **correct** option.

Column-I	Column-II
a. Prophase	(i) Best phase to study shapes of chromosome
b. Metaphase	(ii) Formation of two daughter nuclei
c. Anaphase	(iii) Condensation of chromatin material takes place
d. Telophase	(iv) Best phase to study morphology of chromosomes

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

109. The A together with B forms mitotic apparatus.

Choose the option which **correctly** fill up the given blanks A and B.

A	B
(1) One aster	Spindle fibre
(2) Centriole	Centrosome
(3) Two asters	Spindle fibres
(4) Centrosome	Microtubule

110. In which of the given population interactions, none of the interacting species are benefitted?

- |                      |                |
|----------------------|----------------|
| (A) Competition      | (B) Predation  |
| (C) Protocooperation | (D) Amensalism |

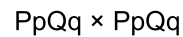
The **correct** ones are

- |                 |                 |
|-----------------|-----------------|
| (1) (A) and (D) | (2) (B) and (C) |
| (3) (A) and (C) | (4) (B) and (D) |

111. Select the **incorrectly** matched pair.

- (1) *Aspergillus* – Produces conidia
- (2) *Rhizopus* – Exhibit dikaryophase
- (3) *Mucor* – Presence of coenocytic mycelium
- (4) *Penicillium* – Produces ascospores

112. Consider the following cross



What are the chances of occurrence of a progeny with PPQq genotype?

- |         |          |
|---------|----------|
| (1) 1/4 | (2) 1/2  |
| (3) 1/8 | (4) 1/16 |

113. Which among the following is an autosomal dominant trait?

- (1) Phenylketonuria
- (2) Myotonic dystrophy
- (3)  $\alpha$  Thalassemia
- (4) Haemophilia

114. Read the following statements of assertion (A) and reason (R) and choose the **correct** option.

**Assertion (A):** An individual affected with sickle cell anaemia shows change in the shape of RBC from biconcave disc to elongated sickle like structure under low oxygen tension.

**Reasons (R):** A mutant haemoglobin molecule in sickle cell anaemia of the affected individual undergoes polymerisation under low oxygen tension.

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

115. In a polynucleotide chain, 3' – 5' phosphodiester linkage joins

- (1) Nitrogenous base and pentose sugar
- (2) Two nucleotides
- (3) Two complementary nitrogenous bases
- (4) A phosphate group to a nucleoside

116. Mark the **correct** sequence of events takes place during the DNA fingerprinting?

- (1) Digestion of DNA → DNA isolation → Autoradiography → Blotting → Electrophoresis
- (2) Autoradiography → DNA cutting into fragments → Blotting → Electrophoresis
- (3) Isolation of DNA → Digestion of DNA → Electrophoresis → Blotting → Hybridisation using VNTR probe → Autoradiography
- (4) Blotting → DNA cutting into fragments → Isolation of DNA → Electrophoresis → Autoradiography

117. Match the column I with column II and select the **correct** option.

**Column I**                      **Column II**

- |                                  |       |                                  |
|----------------------------------|-------|----------------------------------|
| a. Ladybird beetle               | (i)   | Pathogens that attack arthropods |
| b. Dragonflies                   | (ii)  | Controls aphids                  |
| c. Baculoviruses                 | (iii) | Controls mosquitoes              |
| d. <i>Bacillus thuringiensis</i> | (iv)  | Controls butterfly caterpillars  |

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

118. David Tilman's performed long term ecosystem experiments and showed that

- (1) Increased diversity contributed to higher productivity
- (2) Key species drive major ecosystem functions
- (3) A stable community shows much variation in productivity
- (4) Within a region species richness increased with increasing explored area

119. Which among the following is **not** a sub-species of tiger?

- (1) Bali
- (2) Caspian
- (3) Thylacine
- (4) Javan

120. Read the following statements and state them as **true (T)** or **false (F)** then choose the **correct** option.

- A. Of the incident solar radiation less than 2% of it is PAR.
- B. Death of organism is the beginning of the detritus food chain.
- C. Each trophic level has a certain mass of living material at a particular time called as standing crop.

**A**                      **B**                      **C**

- |       |   |   |
|-------|---|---|
| (1) T | T | T |
| (2) T | F | F |
| (3) F | F | T |
| (4) F | T | T |

121. All of the following are adaptations seen in plants to ensure self pollination, **except**

- (1) Cleistogamy
- (2) Dioecy
- (3) Bud pollination
- (4) Homogamy

122. Which of the given traits of pea plant will express in homozygous as well as in heterozygous condition?

- (A) Round seed
- (B) White flower
- (C) Inflated pod
- (D) Terminal flower

The **correct** ones are

- |                 |                 |
|-----------------|-----------------|
| (1) (A) and (B) | (2) (B) and (C) |
| (3) (A) and (C) | (4) (B) and (D) |

123. *Lac y* gene in *lac* operon

- (1) Is constitutive gene
- (2) Produces a biochemical called repressor protein
- (3) Codes for permease that increases permeability of cell to  $\beta$ -galactosides
- (4) Produces  $\beta$ -galactosidase that degrades lactose

124. Transverse section of dicot root shows

- (1) Endodermis in the form of starch sheath
- (2) Large and well developed pith
- (3) Thick walled parenchymatous cells of pericycle
- (4) Usually more than six vascular bundles

125. All of the following features are exhibited by flowers pollinated by abiotic agent, **except**
- (1) Have light weight pollen grains
  - (2) Pollen grains are surrounded by mucilaginous covering
  - (3) Necessarily produce nectar
  - (4) Flowers are packed into inflorescence
126. In bacterial cells, mesosomes help in all of the following, **except**
- (1) Formation of cell wall
  - (2) Secretion process
  - (3) Transfer of nucleoid from one cell to another cell
  - (4) Increase the surface area of plasma membrane
127. Consider the following statements
- a. CO<sub>2</sub> is the major limiting factor for photosynthesis.
  - b. Dark reactions being enzymatic are temperature independent.
  - c. For every CO<sub>2</sub> molecule entering into Calvin cycle, 3 molecules of ATP and 2 molecules of NADH are required.
- The **incorrect** statements are
- (1) All a, b and c
  - (2) a and b only
  - (3) b and c only
  - (4) a and c only
128. Read the following statements of assertion (A) and reason (R) and choose the **correct** option.
- Assertion (A):** Meiosis and fertilisation are responsible for maintaining chromosome number constant from generation to generation.
- Reason (R):** Meiosis reduces the chromosome number to half in the gametes and it get restored in the zygote by the process of fertilisation.
- (1) Both (A) and (R) are true but (R) is not the correct explanation of (A)
  - (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 false
129. Select the **mismatched** pair.
- (1) Gibberellins – Promotes bolting in plants with rosette habit
  - (2) Cytokinin – Stimulates lateral shoot growth
  - (3) Abscisic acid – Promotes root hair formation
  - (4) Auxin – Responsible for apical dominance
130. The generative cell of the pollen grain
- (1) Has a large irregularly shaped nucleus
  - (2) Forms the pollen tube
  - (3) Is spindle shaped with dense cytoplasm and a nucleus
  - (4) Has abundant food reserve
131. Which of the given is referred as complex IV in ETS?
- (1) Cytochrome c oxidase complex
  - (2) Cytochrome bc<sub>1</sub> complex
  - (3) NADH dehydrogenase
  - (4) Ubiquinone
132. Select the **incorrect** match w.r.t. phytohormones and their composition.
- (1) Indole compounds – IAA
  - (2) Terpenes – N<sup>6</sup>-furfurylaminopurine
  - (3) Adenine derivative – Kinetin
  - (4) Derivatives of carotenoids – ABA
133. Which of the given mathematical equation represents species-area relationships on logarithmic scale?
- (1)  $S = CA^Z$
  - (2)  $\log S = \log C + Z \log A$
  - (3)  $Nt = N_0 \cdot e^{rt}$
  - (4)  $\frac{dt}{dN} = rN \left( \frac{K-N}{K} \right)$
134. Which of the following are found in *Equisetum*?
- A. Motile male gametes
  - B. Rhizome
  - C. Prothallus
  - D. Homospory
- (1) A and B only
  - (2) A, B and C only
  - (3) C and D only
  - (4) All A, B, C and D
135. Flocs are formed during secondary treatment of sewage. They are made up of
- (1) Aerobic bacteria and fungal filaments
  - (2) Anaerobic bacteria and algal filaments
  - (3) Algal and fungal filaments
  - (4) Cyanobacteria and methanogens

## ZOOLOGY

136. Which of the following tissues has a limited role in absorption but provides protection against chemical and mechanical stresses?
- (1) Squamous epithelium
  - (2) Compound epithelium
  - (3) Cuboidal epithelium
  - (4) Columnar epithelium
137. In humans, cells present in the interstitial spaces of testes secrete
- (1) Testosterone
  - (2) Progesterone
  - (3) FSH
  - (4) LH
138. Select the **incorrect** option w.r.t. the tissue that attaches skeletal muscles to bones.
- (1) Fibres and fibroblasts are compactly packed in this.
  - (2) Orientation of fibres show an irregular pattern.
  - (3) Collagen fibres are present in rows between many parallel bundles of fibres.
  - (4) This tissue is a dense regular connective tissue.
139. Which among the following elements is present in least amount in human body?
- (1) N
  - (2) Na
  - (3) Si
  - (4) O
140. All of the following statements are **correct** w.r.t. digestion in frogs, **except**
- (1) Pancreas produces pancreatic juice containing digestive enzymes.
  - (2) The wall of the stomach secretes HCl and gastric juices.
  - (3) Gall bladder synthesizes bile that emulsifies fat.
  - (4) Chyme is the partially digested food which passes from stomach to the first part of small intestine.
141. In humans, juxtaglomerular apparatus (JGA) is a special sensitive region formed by cellular modifications of
- (1) Proximal convoluted tubule and afferent arteriole
  - (2) Distal convoluted tubule and afferent arteriole
  - (3) Proximal convoluted tubule and efferent arteriole
  - (4) Distal convoluted tubule and efferent arteriole
142. Select the **odd** one w.r.t. the components of lymphatic system of frogs.
- (1) Lymph channel
  - (2) Lymph nodes
  - (3) Sinus venosus
  - (4) Lymph
143. Match column I with column II and select the **correct** option.
- | Column I                  | Column II   |
|---------------------------|-------------|
| a. IUD                    | (i) Saheli  |
| b. Barrier contraceptive  | (ii) LNG-20 |
| c. Chemical contraceptive | (iii) Vault |
| d. Oral contraceptive     | (iv) Foam   |
- (1) a(ii), b(iii), c(iv), d(i)    (2) a(iv), b(ii), c(iii), d(i)  
 (3) a(ii), b(iv), c(i), d(iii)    (4) a(iii), b(ii), c(iv), d(i)
144. Which of the following is a secondary metabolite that is not placed under the category of polymeric substances?
- (1) Gums
  - (2) Morphine
  - (3) Cellulose
  - (4) Rubber
145. Select the **correct** option w.r.t. the restriction sites present in *amp<sup>R</sup>* gene of pBR322.
- (1) *Bam*H I and *Pst* I
  - (2) *Pst* I and *Pvu* II
  - (3) *Pvu* I and *Pst* I
  - (4) *Pvu* I and *Sal* I
146. In humans, under normal physiological conditions, which of the following factors does not favour the dissociation of oxygen from the oxyhaemoglobin?
- (1) High H<sup>+</sup> concentration
  - (2) High pCO<sub>2</sub>
  - (3) High temperature
  - (4) High pH
147. Which of the following events given below does not disrupts Hardy-Weinberg equilibrium?
- (1) Movement of individuals from one population to another
  - (2) Change in gene frequency by chance
  - (3) Absence of mutation
  - (4) Occurrence of natural selection

148. Which of the following statements is false w.r.t. human heart?
- (1) The walls of ventricles are thicker than that of atria.
  - (2) SA node is present in the lower left corner of the right atrium.
  - (3) The nodal musculature is autoexcitable.
  - (4) Heart normally beats 70-75 times in a minute.
149. Choose the **odd** one w.r.t. chordates.
- (1) A post-anal tail is present.
  - (2) Pharynx is perforated by gill slits.
  - (3) Central nervous system is ventral, solid and double.
  - (4) Heart is ventral.
150. Complete the analogy by selecting the **correct** option w.r.t. adult humans.
- 120 mm Hg : Normal systolic pressure :: \_\_\_\_\_ : Normal diastolic pressure
- (1) 140 mm Hg                      (2) 60 mm Hg
  - (3) 80 mm Hg                      (4) 120 mm Hg
151. In *Periplaneta americana*, at the junction of   A  , a ring of   B   yellow coloured thin filaments is present that performs the function of excretion.
- Select the **correct** option to fill in the blanks A and B.
- | <b>A</b>               | <b>B</b> |
|------------------------|----------|
| (1) Foregut and midgut | 6-8      |
| (2) Foregut and midgut | 100-150  |
| (3) Midgut and hindgut | 6-8      |
| (4) Midgut and hindgut | 100-150  |
152. During the course of evolution, some of the land reptiles went back into water and evolved into fish-like reptiles, such as *Ichthyosaurs*. This event probably occurred around
- (1) 65 mya                              (2) 320 mya
  - (3) 200 mya                            (4) 350 mya
153. Read the statements given below carefully and select the option that represents **incorrect** statement.
- (1) *Ramapithecus* was more man-like while *Dryopithecus* was more ape-like.
  - (2) Two mya, *Australopithecines* probably lived in East Asian grasslands.
  - (3) The Neanderthal man lived between 1,00,000-40,000 years back.
  - (4) Agriculture came around 10,000 years back.
154. Select the **incorrect** statement w.r.t. respiratory diffusion membrane in humans.
- (1) The diffusion membrane is made up of three cellular layers.
  - (2) Total thickness of diffusion membrane is much less than a millimeter.
  - (3) Thin squamous epithelium of alveoli is a cellular layer.
  - (4) The basement substance is present in between the thin squamous epithelium of alveoli and the endothelium of alveolar capillaries.
155. Which among the following is an amino-acid derivative hormone?
- (1) GnRH                                      (2) TSH
  - (3) Epinephrine                            (4) Thyrocalcitonin
156. In human males, the region outside the seminiferous tubules contains all of the following, **except**
- (1) Interstitial cells
  - (2) Immunocompetent cells
  - (3) Blood vessels
  - (4) Sertoli cells
157. Drug cocaine is obtained from the extracts of
- (1) *Cannabis sativa*
  - (2) *Papaver somniferum*
  - (3) *Erythroxylum coca*
  - (4) *Atropa belladonna*
158. Read the statements given below and select the **correct** option.
- Statement A:** Joints are essential for all types of movements, except locomotory movements
- Statement B:** Force generated by the muscles is used to carry out movements through joints.
- (1) Only statement A is correct
  - (2) Both statements A and B are incorrect
  - (3) Both statements A and B are correct
  - (4) Only statement B is correct
159. The enzyme that is generally used in extension step of PCR is isolated from
- (1) *Escherichia coli*
  - (2) *Thermus aquaticus*
  - (3) *Salmonella typhimurium*
  - (4) *Agrobacterium tumefaciens*

160. Select the **incorrect** match w.r.t. disorders of muscular and skeletal system.

- (1) Gout – Accumulation of uric acid crystals in joints  
 (2) Arthritis – Inflammation of joints  
 (3) Osteoporosis – Increased estrogen levels  
 (4) Tetany – Due to low  $\text{Ca}^{++}$  in body fluid

161. Match the zoological name of organisms listed in column I with their common name in column II.

	Column I		Column II
a.	<i>Chelone</i>	(i)	Garden lizard
b.	<i>Calotes</i>	(ii)	Magur
c.	<i>Clarias</i>	(iii)	Pigeon
d.	<i>Columba</i>	(iv)	Turtle

Choose the **correct** option.

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

162. In humans, the limbic system is a complex structure formed by all of the following, **except**

- (1) Hippocampus  
 (2) The inner parts of cerebellar hemispheres  
 (3) Amygdala  
 (4) The inner parts of cerebral hemispheres

163. Choose the **incorrect** statement w.r.t. electrical synapses.

- (1) Transmission of impulse across them is similar to impulse conduction along a single axon.  
 (2) The membrane of pre- and post-synaptic neurons are in close proximity.  
 (3) They are abundant in our body.  
 (4) Impulse transmission across an electrical synapse is always faster than that across a chemical synapse.

164. Select the **correct** option w.r.t. human neural system

- (1) Visceral nervous system comprises the whole complex of nerves, fibres, ganglia and plexuses.  
 (2) The somatic neural system relays impulses from CNS to smooth muscles of the body.  
 (3) The autonomic neural system transmits impulses from CNS to skeletal muscles.  
 (4) The peripheral nervous system comprises of all the nerves of the body associated with the brain only.

165. In humans, saddle joint is present between

- (1) Humerus and pectoral girdle  
 (2) Atlas and axis  
 (3) Carpal and metacarpal of thumb  
 (4) Carpals

166. The structure **not** associated with the brain stem of humans is

- (1) Pons  
 (2) Cerebellum  
 (3) Midbrain  
 (4) Medulla oblongata

167. Which of the following is **incorrect** match?

(1)  : Lecithin

(2)  : Uridylic acid

(3)  $\text{CH}_3-(\text{CH}_2)_{14}-\text{COOH}$  : Palmitic acid

(4)  : Serine

168. Select the **incorrect** statement w.r.t. hormones secreted from GIT.

- (1) They are chemically peptides.  
 (2) GIP inhibits gastric secretion and motility.  
 (3) Secretin stimulates the secretion of pancreatic enzymes and bile juice.  
 (4) The secretion of HCl and pepsinogen is stimulated by gastrin.

169. Volume of air that remains in lungs after a normal expiration is termed as

- (1) Residual volume  
 (2) Tidal volume  
 (3) Functional residual capacity  
 (4) Expiratory capacity

170. Select the **incorrect** option w.r.t. androgens.
- (1) These hormones stimulate muscular growth.
  - (2) They play a major inhibitory role in the process of spermatogenesis.
  - (3) They act on CNS and influence the male sexual behaviour.
  - (4) These hormones produce anabolic effects on protein and carbohydrate metabolism.
171. Which of the following can be a method to cure adenosine deaminase (ADA) deficiency permanently?
- (1) Periodic infusion of genetically engineered lymphocytes having functional ADA cDNA
  - (2) Bone marrow transplantation
  - (3) Enzyme replacement therapy
  - (4) Introduction of ADA gene into cells at early embryonic stages
172. Which of the following facts/features is **correct** w.r.t. white muscle fibres?
- (1) Myoglobin is absent
  - (2) Plenty of mitochondria is present
  - (3) High amount of sarcoplasmic reticulum is present
  - (4) They depend on aerobic process for energy
173. **Assertion (A):** Testes in human males are extra abdominal.  
**Reason (R):** Lower temperature in scrotal sac than that of internal body temperature is necessary for spermatogenesis.  
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
174. Choose an **incorrect** statement w.r.t. mammary glands.
- (1) A functional mammary gland is the characteristic of all members of class Mammalia including humans.
  - (2) The mammary glands contain glandular tissue and variable amount of fat.
  - (3) The glandular tissue of each breast is divided into 15-20 mammary lobes.
  - (4) Each mammary lobe contains cluster of cells called alveoli.
175. Leydig cells are acted upon by the hormone secreted by \_\_\_\_\_ to stimulate the secretion of androgens.  
Select the **correct** option to fill in the blank.
- (1) Pars nervosa                      (2) Neurohypophysis
  - (3) Pars intermedia                (4) Pars distalis
176. According to MTP (Amendment) act 2017, the opinion of how many registered medical practitioner(s) is/are required for MTP, if the pregnancy has lasted for seven weeks?
- (1) Two                                      (2) Three
  - (3) Zero                                      (4) One
177. Which one of the following **correctly** explains the function of a specific part of human nephron?
- (1) Distal convoluted – Reabsorption of  $K^+$  into the renal tubules
  - (2) Afferent arteriole – Carries blood away from the glomerulus and towards renal vein
  - (3) Podocytes – Create slit pores for the filtration of blood into the Bowman's capsule
  - (4) Henle's loop – Maximum reabsorption of major substances from the glomerular filtrate
178. All the following methods of ART involve *in-vitro* fertilisation, **except**
- (1) ICSI                                      (2) ZIFT
  - (3) GIFT                                      (4) IUT
179. Choose the structure **not** found in a male cockroach.
- (1) Labium                                      (2) Anal cerci
  - (3) Anal style                                (4) Spermatheca
180. Observe the figure given below and select the **correct** option w.r.t. it.



- (1) Drugs obtained from this plant are opioids
- (2) Their receptors are present principally in the brain
- (3) Usually taken by snorting and injection
- (4) The plant is native to South America