1. A spring executes SHM with mass of 4 kg attached to it. The force constant of spring is 100 N/m. If at any instant its velocity is 40 cm/s, the displacement from the mean position will be (Here amplitude is 0.5 m)

(1) 0.06 m (2) 0.3 m

(3) 0.49 m (4) 1.0 m

2. The distance of the centres of moon and earth is D. The mass of earth is 81 times the mass of the moon. At what distance from the centre of the earth, the gravitational force will be zero

(1) $\frac{D}{2}$ (2) $\frac{2D}{3}$

(3) $\frac{4D}{3}$ (4) $\frac{9D}{10}$

3. Which of the following statements are true during the propagation of a plane progressive harmonic mechanical wave in a non dissipative medium?

I. All the particles are vibrating in the same phase.

II. Amplitudes of all the particles are equal.

III. Particles of medium executes S.H.M.

IV. Wave velocity depends upon the nature of the medium.

(1) I and II are only true

(2) III and IV are only true

(3) II, III and IV are only true

(4) All are true

4. The angle of a prism is *A*. One of its refracting surfaces is silvered. Light rays falling at an angle of incidence 2*A* on the first surface returns back through the same path after suffering reflection at the silvered surface. The refractive index μ, of the prism is

(1) 2sin*A* (2) 2cos*A*

(3) $\frac{1}{2}$ cos*A* (4) tan*A*

5. A plane Electromagnetic Waves travels in free space along x-axis. At a particular point in space, the electric field along y- axis is 9.3 Vm^{-1}. The magnetic induction is

(1) 3.1×10^{-8} T (2) 3×10^{-5} T

(3) 3×10^{-6} T (4) 9.3×10^{-6} T

6. A conveyor belt is moving at a constant speed of 4 m/s. A box is gently dropped on it. The coefficient of friction between them is μ = 0.2. The distance that the box will move relative to ground before coming to rest with respect to belt, is

(1) 8 m (2) 3 m

(3) 2 m (4) 4 m

7. In an unbiased p-n junction which of the following is correct?

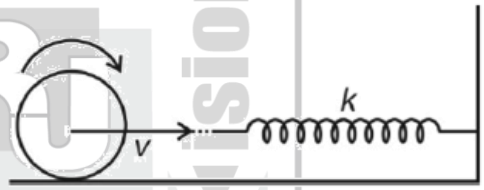
(1) p-side have more potential than n-side

(2) n-side have more potential than p-side

(3) Both p and n-side are at the same potential

(4) Any of the above is possible depending on the density of the media on both sides.

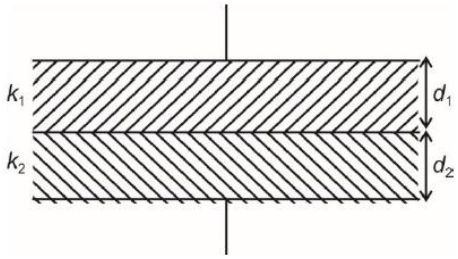
8. A hollow sphere of mass *m* is rolling with a speed *v* on a smooth horizontal surface and strikes a massless spring of force constant *k* attached to a massless smooth platform. Then the maximum compression of spring is



(1) $\sqrt{\frac{m}{k}}v$ (2) $\sqrt{\frac{2m}{3k}}v$

(3) $\sqrt{\frac{m}{5k}}v$ (4) $\sqrt{\frac{5m}{3k}}v$

9. Space between plates of a capacitor (of area *A*) is filled two dielectric slab of dielectric constant k_1 and k_2. The capacitor is connected to battery of emf *E*, then the charge stored on the capacitor will be ($d_2 = 1.5d_1$ and $k_1 = 2k_2$)



(1) $\frac{3\varepsilon_0 Ak_2}{2d_1}E$ (2) $\frac{\varepsilon_0 Ak_2}{6d_1}E$

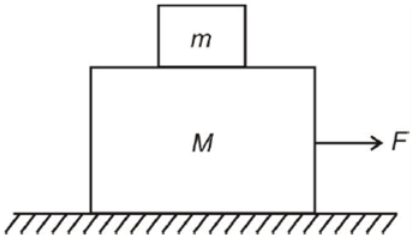
(3) $\frac{\varepsilon_0 Ak_1}{2d_1}E$ (4) $\frac{\varepsilon_0 Ak_2}{2d_1}E$

10. The diameter of a cylinder is measured with a meter rod having least count 0.1 cm. Its length is measured with Vernier calipers having least count 0.01 cm. Given that length is 2.00 cm and diameter is 4.0 cm. The percentage error in the calculated value of the curved surface area will be

(1) 1% (2) 8%

(3) 3% (4) 4%

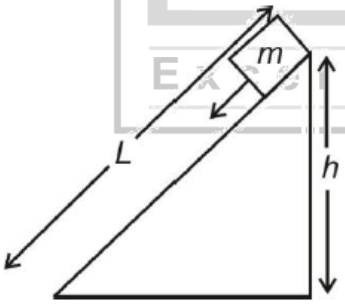
11. The coefficient of static friction between the two blocks shown in figure is μ and the table is smooth. What maximum horizontal force *F* can be applied to the block of mass *M* so that the blocks move together?



(1) $M\mu g$ (2) $(m + M)\,\mu g / 2$

(3) $(m + M)\,\mu g$ (4) $m\mu g$

12. A body of mass *m* is released from the top of a fixed rough inclined plane as shown in figure. If the frictional force has magnitude *F*, then body will reach the bottom with a velocity ($L = \sqrt{2}\,h$)



(1) $\sqrt{2gh}$ (2) $\sqrt{\frac{2Fh}{m}}$

(3) $\sqrt{2gh+\frac{2Fh}{m}}$ (4) $\sqrt{2gh-\frac{2\sqrt{2}Fh}{m}}$

13. A particle of mass *m* is moving in a horizontal circle of radius *r*, under a centripetal force equal to $\left(-\frac{k}{r^2}\right)$, where *k* is a constant. The magnitude of kinetic energy of the particle is proportional to

(1) r^{-1} (2) r^{-3}

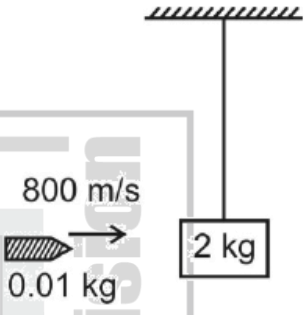
(3) r (4) r^3

14. The potential energy between two atoms in a molecule is given by, $U(x) = \frac{a}{x^{12}} - \frac{b}{x^6}$, where *a* and *b* are positive constant and x is the distance between the atoms. The atoms are at equilibrium, when x is equal to

(1) $\sqrt[3]{\frac{2a}{b}}$ (2) $\sqrt[6]{\frac{2a}{b}}$

(3) $\sqrt[6]{\frac{a}{b}}$ (4) $\sqrt[6]{\frac{a}{2b}}$

15. A bullet of mass 0.01 kg travelling at a speed of 800 m/s strikes a block of mass 2 kg, which is suspended by a string of length 10 m. The centre of gravity of the block is found to rise a vertical distance of 0.2 m. The speed of the bullet after it emerges from the block will be



(1) 100 m/s (2) 500 m/s

(3) 400 m/s (4) 600 m/s

16. Photoelectric emission occurs only when the incident light has more than a certain minimum

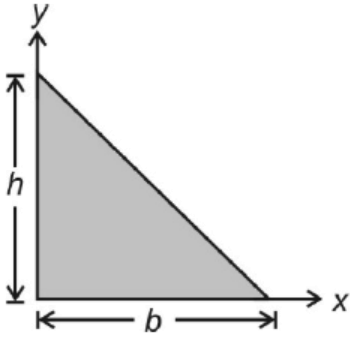
(1) Power

(2) Intensity

(3) Wavelength

(4) Frequency

17. The center of mass of a uniform triangular lamina shown in figure has coordinates (*h* = 6 m, *b* = 3 m)



(1) (1, 2) (2) (2, 1)

(3) (0, 0) (4) (4, 1)

18. If linear mass density of a rod of length 3 m varies as $\mu = 2 + x^2$, then the position of the centre of mass of the rod is (w.r.t. to the end of the rod from where x is measure)

(1) 1 m (2) 2.4 m

(3) 1.5 m (4) 1.95 m

19. A body of mass *m kg* is lifted by a man to a height of one metre in 30 *sec*. Another man lifts the same mass to the same height in 60 *sec*. The work done by them are in the ratio

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

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

20. An automobile engine develops 100 kilo-watt, when rotating at a speed of 1800 rev./min. The torque developed by it will be –

(1) 60 N-m (2) 531 N-m

(3) 5.31 N-m (4) 6.0 N-m

21. If *g* is the acceleration due to gravity on the earth's surface, the gain in P.E. of an object of mass *m* raised from the surface of the earth to a height equal to the radius *R* of the earth is

(1) mgR (2) 2mgR

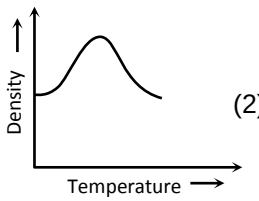
(3) mgR/2 (4) mgR/4

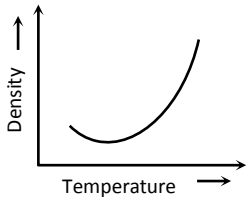
22. Two satellites S_1 and S_2 revolve round a planet in the same direction in circular orbits. Their periods of revolutions are 1 hour and 8 hour respectively. The radius of S_1 is 10^4 km. The radius of S_2 will be

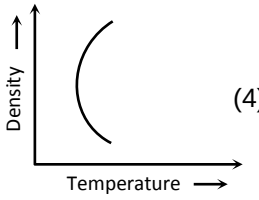
(1) 4×10^4 km (2) $\frac{\pi}{3} \times 10^4$ km

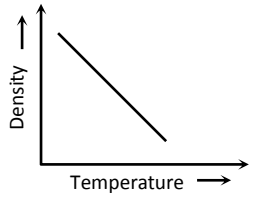
(3) $2\pi \times 10^4$ km (4) $\frac{\pi}{2} \times 10^4$ km

23. The variation of density of water with temperature is represented by the

(1) 

(2) 

(3) 

(4) 

24. Two soap bubbles of radii equal to 6 cm and 8 cm are touching each other over a common surface. Radius of the common surface will be

(1) 3.42 cm (2) 4 cm

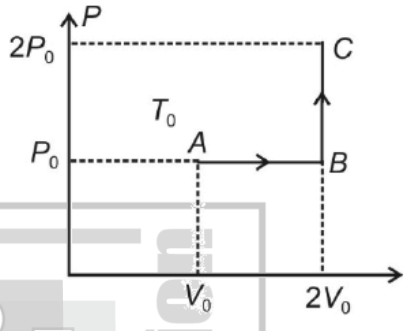
(3) 24 cm (4) 10 cm

25. One mole of an ideal gas at an initial temperature of *T* K does 15R joules of work adiabatically. If the ratio of specific heats of this gas at constant pressure and at constant volume is 5/3, the final temperature of gas will be

(1) (T + 2.4) K (2) (T – 10) K

(3) (T – 4) K (4) (T + 10) K

26. One mole of an ideal monatomic gas is taken from *A* to *C* along the path *ABC*. The temperature of the gas at *A* is T_0. For the process *ABC*



(1) Work done by the gas is RT_0

(2) Change in internal energy of the gas is $11RT_0/2$

(3) Heat absorbed by the gas is $21RT_0/2$

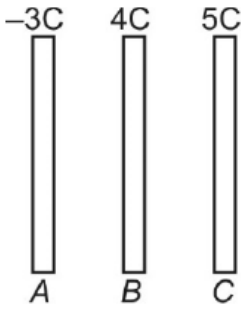
(4) Heat absorbed by the gas is $13RT_0/2$

27. The temperature of sink of Carnot engine is 27°C and Efficiency of engine is 60 %. Then temperature of source is

(1) 227°C (2) 477°C

(3) 127°C (4) 27°C

28. Three large plates *A*, *B* and *C* are placed parallel to each other and charges are given as shown. The charge that appears on the left surface of plate *B* is



(1) 5 C (2) 6 C

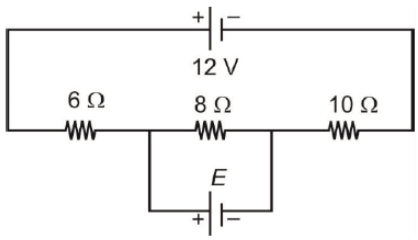
(3) 3 C (4) –3 C

29. The lengths of the three wires of copper are in the ratio of 1 : 4 : 8 and their masses are in the ratio of 5 : 3 : 1. The ratio of their electrical resistance is

(1) 1 : 3 : 5 (2) 3 : 80 : 960

(3) 1 : 25 : 125 (4) 125 : 15 : 1

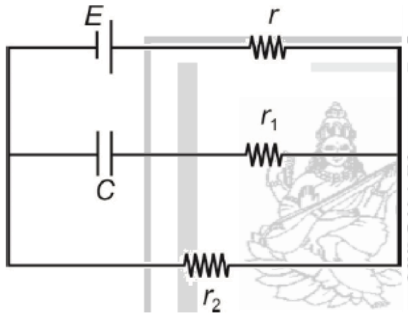
30. In the circuit shown, the current through 8 Ω is same before and after connecting *E*. The value of *E* is



(1) 12 V (2) 6 V

(3) 4 V (4) 2 V

31. In the given circuit diagram when the current reaches steady state in the circuit, the charge on the capacitor of capacitance *C* will be



(1) $CE\frac{r_2}{r_2+r_1}$ (2) $CE\frac{r_2}{r_2+r}$

(3) $CE\frac{r_1}{r_2+r_1}$ (4) $CE\frac{r}{r_2+r_1}$

32. In the series combination of 18 cells each cell having emf 6 V and internal resistance 2 ohm, if three cells are wrongly connected (*i.e.* their polarity is opposite to remaining 15 cells), then total emf and internal resistance of this combination will be

(1) 36 V, 36 Ω (2) 72 V, 30 Ω

(3) 90 V, 36 Ω (4) 72 V, 36 Ω

33. A thin wire bent to form a circle and carrying a current *I* has a magnetic moment *M*. The shape of the wire is changed to a square and it carries the same current. It will have a magnetic moment

(1) $\frac{\pi M}{4}$ (2) $\frac{M}{4}$

(3) M (4) πM

34. If a magnetic dipole of moment *M*, initially situated in the direction of a magnetic field *B* is rotated by 180°, then the amount of work done is

(1) *MB* (2) 2*MB*

(3) $\frac{MB}{\sqrt{2}}$ (4) 0

35. Self inductance of primary and secondary of a perfectly coupled coils are 4 mH and 9 mH respectively. The coefficient of mutual inductance between them is

(1) 5 mH

(2) 13 mH

(3) 4 mH

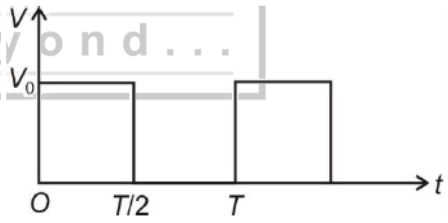
(4) 6 mH

36. An ac source of angular frequency ω is fed across a resistor *r* and a capacitor *C* in series. The current in the circuit measured is *I*. If now the frequency of source is changed to ω/3 (but maintaining the same voltage), the current in the circuit is found to reduce by a factor of three. The power factor of the circuit at the original frequency ω is

(1) 1 (2) 1/2

(3) Zero (4) 1/3

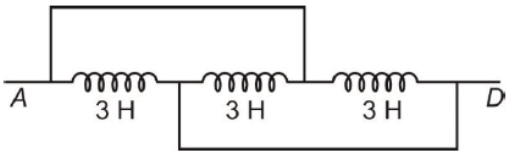
37. The r.m.s. value of potential difference *V* shown in the figure between 0 and $\frac{T}{2}$ is



(1) V_0 (2) $\frac{V_0}{2}$

(3) $\frac{V_0}{\sqrt{2}}$ (4) $\frac{V_0}{3}$

38. The inductance between *A* and *D* is



(1) 9 H

(2) 6 H

(3) 2 H

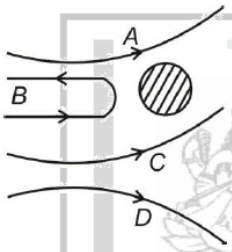
(4) 1 H

39. Match List-I (Electromagnetic wave type) with List-II (Its Application) and select the correct option from the choices given below the lists:

	List-I		List-II
a.	Infrared waves	(i)	To treat muscular strain
b.	Radio waves	(ii)	For broadcasting
c.	X-rays	(iii)	To detect fracture of bones
d.	Ultraviolet rays	(iv)	Absorbed by the ozone layer

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

40. In the Rutherford experiment, α-particles are scattered from a nucleus as shown. Out of the four paths, which path is not possible?



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

41. A convex lens produces a real image *m* times the size of the object. What will be the distance of the object from the lens

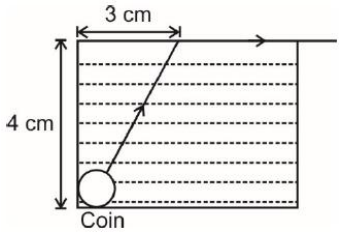
(1) $\left(\frac{m+1}{m}\right)f$ (2) $(m-1)f$

(3) $\left(\frac{m-1}{m}\right)f$ (4) $\frac{m+1}{f}$

42. The ratio of thickness of plates of two transparent medium *A* and *B* is 16 : 5. If time taken by light through *A* is twice than that through *B*, then refractive index of *A* with respect to *B* will be

(1) 1.33 (2) 1.75
(3) 0.625 (4) 0.15

43. A small coin is resting on the bottom of a beaker filled with liquid. A ray of light from the coin travels upto the surface of the liquid and moves along its surface. What is the refractive index of the liquid?



(1) 0.8 (2) 0.51
(3) 1.67 (4) 0.6

44. The two slits at a distance of 1 *mm* are illuminated by the light of wavelength $6.5\times10^{-7}m$. The interference fringes are observed on a screen placed at a distance of 1*m*. The distance between third dark fringe and fifth bright fringe will be

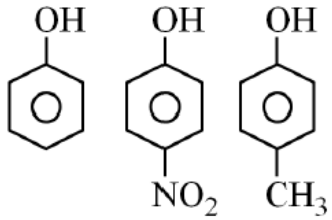
(1) 0.65 *mm* (2) 1.63 *mm*
(3) 3.25 *mm* (4) 4.88 *mm*

45. If the magnetic dipole moment of an atom of diamagnetic material, paramagnetic material and ferromagnetic material denoted by *d*, *p*, *f* respectively then

(1) $d \neq 0$ and $f \neq 0$
(2) $p = 0$ and $f = 0$
(3) $d = 0$ and $p \neq 0$
(4) $d = 0$ and $p = 0$

46 At 1000 K, value of K_p for the reaction $2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ is 100 then at same temperature value of K_C will be?
(Given: R = 0.053 L bar K^{-1} mol^{-1})
(1) 8.3 (2) 8.3×10^{-3}
(3) 8.3×10^{5} (4) 8.3×10^{3}

47. Correct order of K_a values for the following compounds is



(a) (b) (c)

(1) c > b > a (2) a > b > c
(3) b > c > a (4) b > a > c

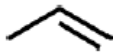
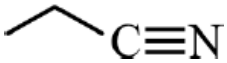
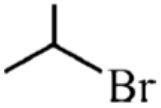
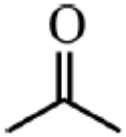
48. K_{sp} of AgCl is 10^{-10} M^2. Find the volume of water (in cm^3) required to dissolve 1.435 g of AgCl.
(1) 10^3 (2) 10^5
(3) 10^6 (4) 10^4

49. Which of the following options consist of only intensive properties?
(1) pH of solution, Temperature and volume.
(2) Specific heat capacity, Molar internal energy and E.M.F.
(3) Resistance, Molar mass and Vapour density.
(4) Density, Mass and Temperature

50. For the reaction at 400 K
$N_2(g) + 2O_2(g) \rightarrow 2NO_2(g)$
$\Delta H° = 66.2$ kJ/mol, $\Delta S° = -132.4$ JK^{-1} mol^{-1} Identify the correct statement.
(1) Reaction will be at equilibrium at 500 K.
(2) Reaction is favoured by entropy.
(3) Reaction will not take place under given condition.
(4) Reaction is favoured by enthalpy.

51. Which of the following pairs of orbitals do not have electron density along the axis?
(1) d_{xy}, p_z
(2) $d_{x^2-y^1}, d_{z^2}$
(3) p_x, p_y
(4) d_{xy}, d_{yz}

52. Considering the wavelength of electron and proton to be equal then the ratio of their velocities would be:-
(Mass of electron = 9.1×10^{-31} kg, mass of proton = 1.67×10^{-27}kg)
(1) 91 (2) 15.20
(3) 1.6 (4) 1835

53. Electromeric effect is not observed in:
(1)  (2) 
(3)  (4) 

54. The mixture which shows positive deviation from Raoult's law is:-
(1) $CS_2 + CH_3COCH_3$
(2) Benzene + Toluene
(3) $CHCl_3 + CH_3COCH_3$
(4) Phenol + Aniline

55. **Statement-I:** D-Glucose & L-Glucose are mirror image of each other.
Statement-II: D & L glucose are enantiomer of each other.
(1) Both Statement I and Statement II are incorrect.
(2) Statement I is correct but Statement II is incorrect.
(3) Statement I is incorrect but Statement II is correct.
(4) Both Statement I and Statement II are correct.

56. 5g of Zn is made to react separately with excess of dilute HCl and aqueous NaOH. Then the ratio of volumes of H_2 gas evolved in the two reactions at same pressure and temperature is:
(1) 2: 1 (2) 1: 2
(3) 1: 4 (4) 1: 1

57. The emf of cell Cd(s) $|Cd^{+2}(1M) || Cu^{+2}(1M)|$ Cu(s) will increase, when -
(1) $[Cd^{+2}]$ is increased
(2) $[Cd^{+2}]$ is decreased
(3) $[Cu^{+2}]$ is increased
(4) Both (2) and (3)

58. The resistance and cell constant of a cell containing 0.1 N KCl (aq) solution are 55Ω and 0.66 cm^{-1} respectively. The conductivity of 0.1 N KCl (aq) solution is-

(1) 0.012 Ω^{-1} cm^{-1}

(2) 0.006 Ω^{-1} cm^{-1}

(3) 0.12 Ω^{-1} cm^{-1}

(4) 0.06 Ω^{-1} cm^{-1}

59. Glucose cannot react with which of the following reagent

(1) Br_2 water (2) $NaHSO_3$

(3) HNO_3 (4) Red P + HI

60. $CH_3-CH_2-\overset{\overset{O}{\|}}{C}-H \xrightarrow{HCN} (A) \xrightarrow{H_3O^+} (B)$

'B' is -

(1) CH_3-CH_2-COOH

(2) $CH_3-CH_2-CH_2-COOH$

(3) $CH_3-CH_2-\underset{\underset{OH}{|}}{CH}-COOH$

(4) $CH_3-CH_2-CH_2-OH$

61. Two isomers A and B with molecular formula C_4H_8 give different products on oxidation with $KMnO_4$ in acidic medium. Isomer A on reaction with $KMnO_4/H^{\oplus}$ results in effervescence of a gas and gives ketone. The compound A is:

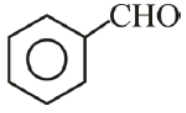
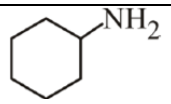
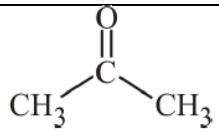
(1) But-1-ene

(2) cis-2-Butene

(3) trans-2-Butene

(4) 2-Methyl propene

62. Match the column:

List-I (Compound)		List-II (Reagent used for detection)	
A	CH_3COOH	P	I_2/NaOH
B		Q	$AgNO_3 + NH_4OH$
C		R	$CHCl_3$ + KOH
D		S	CH_3OH / H_2SO_4

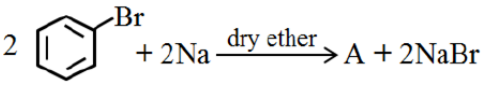
(1) A → P, B → Q, C → R, D → S

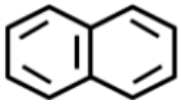
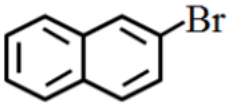
(2) A → S, B → Q, C → R, D → P

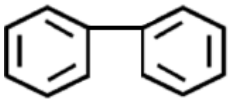
(3) A → Q, B → P, C → R, D → S

(4) A → R, B → S, C → P, D → Q

63. The product A in the reaction is:-



(1)  (2) 

(3)  (4) 

64. Acidic strength order of following alkynes are:-

$CH_3-C\equiv CH$, $CH_3-C\equiv C-CH_3$, $HC\equiv CH$

(a) (b) (c)

(1) b > a > c

(2) a > c > b

(3) c > a > b

(4) b > c > a

65. **Statement I:** Benzene does not undergo addition reactions readily.

Statement II: Benzene has a stable, planar structure with delocalised pi electrons.

(1) Both Statement I and Statement II are incorrect.

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

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

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

66. Which of the following species doesn't change oxidation state in acidic as well as in basic medium

(1) MnO_4^- (2) MnO_4^{2-}

(3) CrO_4^{2-} (4) $Cr_2O_7^{2-}$

67. M^{+2} /M, S.R.P +ve for

(1) Cu (2) Fe

(3) Mn (4) Zn

68. The sum of coordination number and oxidation number of the metal M in the complex $[Co(EDTA)]^{-1}$

(1) 9 (2) 6

(3) 4 (4) 1

69. Incorrect option regarding $Fe(CO)_5$ is

(1) Mononuclear complex

(2) Trigonal bipyramidal

(3) sp^3d hybridisation

(4) Obey's Sidgwick EAN rule

70. **Assertion:** - Order of basic strength

$Ce(OH)_3 > Pr(OH)_3 > Nd(OH)_3$

Reason: Left to right non – metallic character increase so basic strength decreases.

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

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

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

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

71. On treatment with H_2S gas, the solution of salts in NaOH produce a black precipitate. The salts may be:

(1) copper salt (2) lead salt

(3) nickel salt (4) all of these

72. 6×10^{-3} mole of $KMnO_4$ reacts completely with 9×10^{-3} mole of X^{n+} in acidic medium to give XO_3^- and Mn^{2+}. The value of n will be

(1) 7/3 (2) 10/3

(3) 2/3 (4) 5/3

73. Match the element in column-I with the column-II.

Column-I		Column-II	
1	Copper	a	inner transition metal
2	Zinc	b	non transition metal
3	Silicon	c	non metal
4	Cerium	d	transition metal

(1) 1→d, 2→b, 3→c, 4→a

(2) 1→b, 2→c, 3→a, 4→d

(3) 1→a, 2→b, 3→c, 4→d

(4) 1→d, 2→c, 3→a, 4→b

74. In which of the following bond angle difference is greater than 10°:

(a) NH_3, PH_3 (b) BF_3, CF_4

(c) PH_3, AsH_3 (d) NH_3, H_2O

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

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

75. Solution A has 1 mol each of NaOH and NH_4Cl per litre and solution B has 1 mol each of NH_4OH and NH_4Cl per litre. What will be the ratio of pOH value of solution A and B.?

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

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

76. Reducing power of halogen acids is in the order:

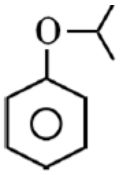
(1) HF > HCl > HBr > HI

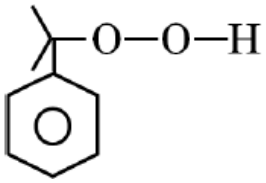
(2) HF < HCl < HBr < HI

(3) HCl < HF < HBr < HI

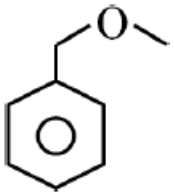
(4) HCl > HF > HI > HBr

77. In the cumene to phenol preparation, in the presence of air, the intermediate is

(1) 

(2) 

(3) 

(4) 

78. The enthalpy of combustion of carbon and carbon monoxide are –393.5 and –285.5 kJ mol^{-1}, respectively then what will be the enthalpy of formation (in kJ) of carbon monoxide :-

(1) –108 (2) 108

(3) 676.5 (4) –676.5

79. Calculate the mass of a non-volatile and nonelectrolyte solute (molar mass = 50 g mol^{-1}) which should be dissolved in 100 g heptane to reduce its vapour pressure to 60%.

(1) 22.2 g

(2) 33.3 g

(3) 42.3 g

(4) 10 g

80. The ratio of mass percentage of "C" & "H" and "C" & "O" in a organic compound "X" is 4 : 1 and 3 : 4 respectively, then the empirical formula of the compound will be :-

(1) CH_4O

(2) CH_3O

(3) C_2H_6O

(4) $C_2H_3O_2$

81. The reaction of formation of phosgene from CO and Cl_2 is $CO + Cl_2 \rightarrow COCl_2$. The proposed mechanism is:-

(i) $Cl_2 \underset{k_2}{\overset{k_1}{\rightleftharpoons}} 2Cl$ (fast)

(ii) $Cl + CO \underset{k_4}{\overset{k_3}{\rightleftharpoons}} COCl$ (fast)

(iii) $COCl + Cl_2 \xrightarrow{k_5} COCl_2 + Cl$(slow)

Find the correct expression of rate law:-

(1) $r = k_5 \times \frac{k_3}{k_4} \times \left(\frac{k_1}{k_2}\right)^{1/2} [CO][Cl_2]^{3/2}$

(2) $r = k_5 \times \frac{k_3}{k_4} \times \left(\frac{k_1}{k_2}\right)^{1/2} [CO][Cl_2]^{1/2}$

(3) $r = k_5 \times \left(\frac{k_3}{k_4}\right)^{1/2} \times \frac{k_1}{k_2} [CO][Cl_2]^{3/2}$

(4) $r = k_5$ [CoCl] [Cl]

82. In Carius method of estimation of halogen 0.18 g of an organic compound gave 0.15 g of AgBr, Find out percentage of Br in compound. -

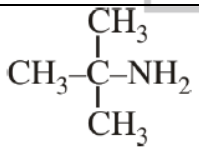
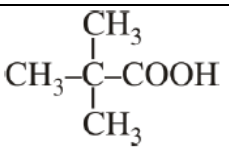
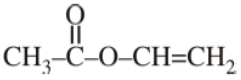
(1) 34.04%

(2) 33.22%

(3) 35.46%

(4) 50.3%

83. Match the column:-

a		i	Vinyl acetate
b		ii	Tertiarybutylamine
c	CH_3 –CH=CH–CHO	iii	Crotonaldehyde
d		iv	Neovaleric acid

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

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

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

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

84. **Statement I:** In Lucas test, 1°, 2° and 3° alcohols are distinguished on the basis of their reactivity with conc. HCl + $ZnCl_2$ known as Lucas reagent.

Statement II: 3° alcohol is most reactive and immediately produce turbidity at room temperature.

(1) Both Statement I and Statement II are incorrect.

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

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

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

85. Identity incorrect reaction:

(1) $C_2H_5 – Cl + KCN \rightarrow C_2H_5 – CN$

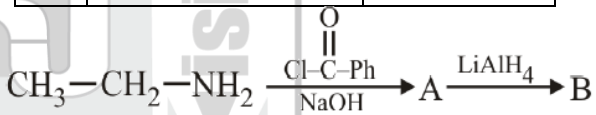
(2) $C_6H_5Cl + AgCN \rightarrow C_6H_5NC$

(3) $C_2H_5Cl + KNO_2 \rightarrow C_2H_5ONO$

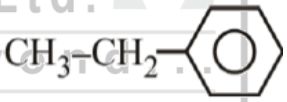
(4) $C_2H_5Cl + AgNO_2 \rightarrow C_2H_5NO_2$

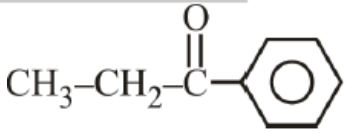
86. Which of the following is not correctly matched?

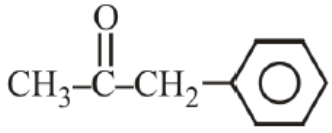
(1)	Misch - Metal	impurity of 'C'
(2)	UK-based silver	Cu & Ni
(3)	Wacker's reagent	$PdCl_2$
(4)	Zieglar natta catalyst	$[RhCl(PPh_3)_3]$

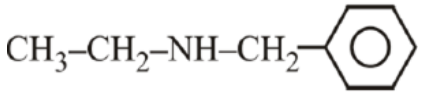
87. 

B is:-

(1) 

(2) 

(3) 

(4) 

88. Find the total number of coloured species out of following:-

Cl_2, NO_2, NH_3, CdS, N_2O_4, $Cu_2[Fe(CN)_6]$

(1) 6

(2) 4

(3) 3

(4) 5

89. **Statement-I:** Pb^{4+} compound are stronger oxidizing agents than Sn^{4+} compounds.

Statement-II: The higher oxidation states for the group 14 elements are more stable for the heavier members of the group due to inert pair effect.

(1) Both Statement I and Statement II are incorrect.

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

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

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

90. Select the correct statement from following:

(a) Hydrolysis of magnesium carbide produces propyne while hydrolysis of beryllium carbide produces methane.

(b) Hydrolysis of magnesium carbide produces propyne while hydrolysis of calcium carbide produces ethyne.

(c) Hydrolysis of boron trifluoride occurs with 75% coversion into hydrolysed product.

(d) Both Aluminium carbide and beryllium carbide gives methane on hydrolysis.

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

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

91. In bacterial cells, mesosomes help in all of the given except

(1) Formation of cell wall

(2) Secretion process

(3) Transfer of DNA from one cell to another cell

(4) Increase the surface area of plasma membrane

92. Which of the following organisms has/have consciousness?

(A) Plants

(B) Animal

(C) Bacteria

(1) Only (A) and (B) (2) Only (B) and (C)

(3) Only (B) (4) All (A), (B) and (C)

93. 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)	Chromosomes appear like ball of wool
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)

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

A: Gynoecium of sesbania is monocarpellary

B: Cellular organisation of the body is the defining feature of living organisms

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

95. Which of the given cell organelles is commonly found in both prokaryotic as well as eukaryotic cells?

(1) Mitochondria (2) Ribosome

(3) Golgi body (4) Lysosome

96. Lipids are arranged within the membrane with

(1) Polar heads toward inner side and the hydrophobic tails toward outer side

(2) Both heads and tails toward outer side

(3) heads toward outer side and tail towards inside

(4) Both heads and tails toward inner side

97. In Krebs' cycle, regeneration of oxaloacetic acid is characterised by all, except

(1) Catalysed by malic dehydrogenase

(2) Reduction of NAD^+ to NADH + H^+

(3) Formation of one molecule of GTP

(4) Last step of Krebs' cycle

98. Both Chasmogamous as well as cleistogamous flowers are produced by which plants groups given below

(1) Common pansy, oxalis, tulip

(2) Oxalis, mango, cotton

(3) Commelina, Viola, oxalis

(4) Jackfruit, Viola, Rose

99. **Assertion A:** Process of splicing represents the dominance of RNA-world

Reason R: The presence of introns is reminiscent of antiquity

(1) Both **A** and **R** are correct but R is not the correct explanation of A.

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

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

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

100. Select the incorrect statement regarding respiration in humans.

(1) Chemosensitive area near the respiratory rhythm centre is highly sensitive to both CO_2 and H^+ ions.

(2) CO_2 and H^+ ion concentration can be recognised by receptors in aortic arch.

(3) The role of oxygen in regulation of the respiratory rhythm is most significant.

(4) Receptors of carotid artery respond to CO_2 concentration levels in blood.

101. Closed type of circulatory system first evolved in phylum

(1) Nematoda (2) Annelida

(3) Arthropoda (4) Mollusca

102. _____is a bone which forms due to ossification of a tendon.

Choose an option that fills the blank correctly.

(1) Carpal (2) Stapes

(3) Patella (4) Sternum

103. Select the correct match for cyclostomes.

	Cyclostome	Feature
(1)	Petromyzon	- Catadromous
(2)	Myxine	- Exclusively marine
(3)	Petromyzon	- Direct development
(4)	Myxine	- Scales are present

104. Arrange the following in correct sequence of the basic steps in gene cloning.

(i) Numerous cell division resulting in a clone

(ii) Multiplication of recombinant DNA molecule

(iii) Transport into the host cell

(iv) Construction of a recombinant DNA molecule

(v) Division of host cell

(1) (iii), (iv), (v), (ii), (i)

(2) (iv), (v), (ii), (iii), (i)

(3) (iv), (iii), (ii), (v), (i)

(4) (iii), (v), (iv), (ii), (i)

105. Select incorrect statement with respect to parasitism

(A) Human liver fluke a parasite has two intermediate hosts , a snail and a fish

(B) There are so many sense organs in parasites for better survival

(C) Majority of parasite harm the hosts

(D) Parasite that feed on the external surface of host organisms are called ectoparasite

The correct option is:

(1) Only (A) and (B)

(2) Only (B)

(3) Only (A) and (C)

(4) Only (C) and (D)

106. Which parents with given genotypes cannot produce child with blood group 'O'?

(1) $I^Ai \times I^Ai$ (2) $I^Ai \times I^Bi$

(3) $I^AI^B \times ii$ (4) $ii \times I^Bi$

107. Which of the given traits of pea plant do not express only in homozygous condition?

(A) Round seed

(B) White flower

(C) Inflated pod

(D) Terminal flower

The correct option is:

(1) (A) and (B) (2) (B) and (C)

(3) (A) and (C) (4) (B) and (D)

108. Which of the given enzymes is not required during DNA replication on template with polarity 3'→ 5'?

(1) DNA polymerase III

(2) DNA dependent RNA polymerase

(3) DNA dependent DNA polymerase

(4) DNA ligase

109. Cells of which of the following regions of root, undergo rapid enlargement and are responsible for the growth of root in length?

(1) Maturation region

(2) Root cap

(3) Elongation region

(4) Meristematic region

110. Read the following statements carefully and select the correct option:

A. Phylogenetic classification is based on possible evolution of different traits

B. The artificial system of classification gives information about both natural and phylogenetic relationships

(1) Only A is correct

(2) Only B is correct

(3) Both (A) and (B) are correct

(4) Both (A) and (B) are incorrect

111. Automated DNA sequencer woks on principle of a method developed by which scientist

(1) Nirenberg

(2) Severo Ochoa

(3) H.G. Khurana

(4) F. Sanger

112. Number of deaths in the population during a given period is called

(1) Natality (2) Mortality

(3) Immigration (4) Emigration

113. Logistic growth in a population
(1) Describes a situation when resources present in the environment are limiting
(2) It also called as geometric growth.
(3) Can be mathematically expressed by the equation $N_t = N_o e^{rt}$
(4) Exhibits J-shaped growth curve when graph is plotted for population density w.r.t time

114. In which of the given population interactions, none of the interacting species are benefitted?
(A) Competition (B) Predation
(C) Protocooperation (D) Amensalism
The correct option is
(1) (A) and (D) (2) (B) and (C)
(3) (A) and (C) (4) (B) and (D)

115. Read the following statements carefully and identify the two correct statements?
(A) The central cell after triple fusion becomes the primary endosperm cell and develops into the endosperm.
(B) A dicot embryo consists of one embryonal axis and one cotyledon.
(C) Radicle and root cap in monocot plant in embryonic stage enclosed in coleorrhiza.
(D) The coconut water in tender coconut is cellular endosperm.
(1) B and D (2) A and C
(3) A and B (4) A and D

116. Which of the given is/are true for members of imperfect fungi?
(1) Fruiting bodies are absent
(2) Reproduce by sexual reproduction only
(3) Mycelium is aseptate and coenocytic
(4) Female sex organ is ascogonium

117. In Griffith's experiment, injection of which of the given strains of Streptococcus bacterium caused the death of mice?
(a) Live S strain alone
(b) Live R strain alone
(c) S strain (heat killed) + R-strain (live)
(d) S strain (heat killed)
The correct option is
(1) (a) and (c) (2) (b) and (c)
(3) (a) and (d) (4) (b) and (d)

118. The main axis terminates in a flower and other flowers are borne in a basipetal order in
(1) Mustard (2) Teak
(3) Radish (4) Lupin

119. T.S. of dicot root shows
(1) Starch sheath
(2) Well developed pith
(3) Parenchymatous pericycle
(4) Polyarch xylem bundles

120. During photosynthesis the CO_2 acceptor in rice plants is
(1) PGA (2) PEP
(3) RuBP (4) OAA

121. **Statement I:** Bacteria shows most extensive metabolic diversity
Statement II: Archaebacteria differ from other bacteria in having different cell membrane structure which is responsible for their survival in extreme conditions
(1) Both statement I and statement II are incorrect.
(2) Statement I is correct but statement II is incorrect.
(3) Statement I is incorrect but statement II is correct.
(4) Both statement I and statement II are correct.

122. The ploidy level of integument and antipodal cell of a typical angiospermic plant, respectively are
(1) n and n (2) n and 2n
(3) 2n and n (4) 2n and 2n

123. Equisetum shows which of the following set of features/conditions?
A. Mobile male gametes
B. Rhizome
C. Prothallus
D. Homospory
(1) A and B only
(2) A, B and Conly
(3) B, C and D only
(4) All A, B, Cand D

124. Which of the reactions are sensitive to temperature
(1) Light reactions of photosynthesis
(2) Dark reactions of photosynthesis
(3) Both (1) and (2)
(4) None of these

125. Select the correct statement.
(1) NAA is a synthetic auxin
(2) Auxins promote fruit and leaf drop at early stage
(3) Auxins prevent the abscission of older mature leaves and fruits
(4) 2,4-D is a natural auxin

126. Flocs are formed during secondary treatment of sewage. They are made up of
(1) Aerobic bacteria and fungal filaments
(2) Anaerobic bacteria and aerobic bacteria
(3) Anaerobic bacteria and fungal filaments
(4) Bacteria only

127. Which one is not a hot spot of India?
(1) Western Ghats
(2) Crop fields of Rice
(3) Indo-Burma
(4) Himalaya

128. Abscisic acid is responsible for
(a) Closure of stomata
(b) Triple response
(c) Inducing cell division
(d) Bolting
(1) (a) only
(2) (a) and (b) only
(3) (c) and (d) only
(4) (a) and (d) only

129. True coelom is absent in members of phyla
(1) Platyhelminthes and Aschelminthes
(2) Mollusca and Annelida
(3) Annelida and Arthropoda
(4) Arthropoda and Mollusca

130. The substance that causes malaria fever and is accumulated during developing trophozoites of Plasmodium by degradation of haemoglobin in RBCs of human host is
(1) Haematin
(2) Hemozoin
(3) Haematocrit
(4) Haem

131. Which of the following belongs to phylum Annelida?
(1) Nereis (2) Chaetopleura
(3) Limulus (4) Octopus

132. Pneumatic bones in birds is a flight adaptation as
(1) They help in increasing respiration rate
(2) They help in providing more RBCs
(3) They help in increasing heart rate
(4) They provide buoyancy

133. **Assertion A:** Biodiversity of tropics is greater than temperate region
(1) Both **A** and **R** are correct but R is not the correct explanation of A.
(2) **A** is correct but **R** is not correct.
(3) **A** is not correct but **R** is correct.
(4) Both **A** and **R** are correct but R is the correct explanation of A.

134. Which of the following is not used mainly as biocontrol agent?
(1) Cytosine (2) Baculoviruses
(3) Guanine (4) Anabaena

135. During maturation of proinsulin, which chain is removed to achieve proper folding
(1) Chain A and chain B
(2) Only chain A
(3) Only chain C
(4) Chain A and chain C

136. Choose the structure which is not a part of the brain stem?
(1) Mid brain (2) Pons
(3) Cerebellum (4) Medulla oblongata

137. The structure of chordates which differentiates into brain and spinal cord is
(1) Dorsal notochord
(2) Dorsal hollow nerve cord
(3) Ventral hollow nerve cord
(4) Ventral notochord

138. Select the secondary metabolite that is obtained from Sadabhar plant and used to treat leukaemia (cancer).
(1) Cocaine (2) Vinblastin
(3) Curcumin (4) Morphine

139. Members of which of the following taxa are amniotes?
(1) Pisces and Reptilia
(2) Amphibia and Reptilia
(3) Aves and Reptilia
(4) Amphibia and Pisces

140. _____is a non-reducing sugar because the aldehyde and ketone groups present in the molecule form a glycosidic bond.
Choose the option which fills the blank correctly.
(1) Glucose (2) Sucrose
(3) Lactose (4) Maltose

141. Intake of which hormone can help to postpone menstrual bleeding for a few days?
(1) Estrogen like drugs
(2) Progesterone like drugs
(3) Synthetic oxytocin (Pitocin)
(4) Follicle stimulating hormone

142. **Assertion A:** GM pest-resistant crops are useful
Reason R: GM pest-resistant crops are helped to reduce post-harvest losses
(1) Both **A** and **R** are correct but R is not the correct explanation of A.
(2) **A** is correct but **R** is not correct.
(3) **A** is not correct but **R** is correct.
(4) Both **A** and **R** are correct but R is the correct explanation of A.

143. Test used for detection of Salmonella typhi infection causing sustained fever is
(1) Schick test (2) Gravidex test
(3) Mantoux test (4) Widal test

144. Select the incorrect match w.r.t. transport of gases.
(1) O_2 transported by RBCs - 97%
(2) CO_2 directly dissolved in - 70% plasma
(3) CO_2 transported by RBCs - 20-25%
(4) O_2 dissolved in plasma - 3%

145. Which of the following ions play the most crucial role in exocytosis of neurotransmitter at the chemical synapse?
(1) Na^+ (2) K^+
(3) Ca^{2+} (4) Cl^-

146. Select the incorrect statement w.r.t. Plasmodium.
(1) It reproduces asexually in liver cells of humans.
(2) It reproduces asexually to form gametes in the RBCs of man.
(3) Sporozoite is the infective stage for humans
(4) If all mosquitoes were eradicated from earth, Plasmodium would be unable to complete its life cycle thereby reaching a dead end.

147. Given below are two statements:
Statement I: Homology is accounted for by the idea of branching descent
Statement II: Study of comparative anatomy, fossils and comparative biochemistry provides evidence for evolution
(1) Both statement I and statement II are incorrect.
(2) Statement I is correct but statement II is incorrect.
(3) Statement I is incorrect but statement II is correct.
(4) Both statement I and statement II are correct.

148. Protonephridia are the excretory structures of platyhelminthes whose function is
(1) Excretion only
(2) Digestion
(3) Osmoregulation and excretion
(4) Locomotion

149. Intervertebral disc is made up of
(1) Elastic cartilage
(2) Fibrous cartilage
(3) Calcified cartilage
(4) Hyaline cartilage

150. Which one of the following transforms soluble fibrinogen into insoluble fibrin during blood clotting?
(1) Prothrombin (2) Heparin
(3) Thrombokinase (4) Thrombin

151. Read the following statements w.r.t skeletal muscle fibres and choose the correct option.
(a) Biceps is a skeletal muscle found in the region of arm.
(b) All striated muscle fibres are multinucleated and show functional syncytium.
(c) Functional unit of a skeletal myofibril is sarcomere.
(d) Troponin binds with Ca^{+2} and unmasks the binding sites for myosin on actin.
(e) In a meromyosin, head and cross-arm together constitutes short arm
(1) Statements (a), (b) and (c) are correct
(2) Statements (b), (c) and (d) are correct
(3) Statements (c), (d) and (e) are correct
(4) Statements (a), (c) and (d) are correct

152. Match items in Column-I with those in Column-II and choose the correct option.

Column-I		Column-II
A. Bone	(i)	Osteocytes
B. Skeletal muscle	(ii)	Intercalated disc
C. Cardiac muscle	(iii)	Voluntary
D. Fluid connective tissue	(iv)	Blood

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

153. The exaggerated response of the system to certain antigens present in environment is called
(1) Infestation
(2) Auto-immunity
(3) Grafting
(4) Allergy

154. Given below are four statements (a - d) regarding human blood circulatory system:
(a) Arteries are thick-walled and has narrow lumen as compared to veins.
(b) Angina is acute chest pain due to reduced blood circulation to the brain.
(c) Person with blood group AB can donate blood to any person with any blood group under ABO system
(d) Calcium ions play a very important role in blood clotting.

Which two of the above statements are correct?
(1) (a) and (d) (2) (a) and (b)
(3) (b) and (c) (4) (c) and (d)

155. Which one of the following is not a part of renal pyramid?
(1) Collecting ducts
(2) Loops of Henie
(3) Vasa recta
(4) Convoluted tubules

156. Arrange the following lung volumes/lung capacities in increasing order according to their values and choose the correct option.
a. Tidal volume
b. Residual volume
c. Expiratory reserve volume
d. Vital capacity
(1) a<b<c<d (2) a<d<c<b
(3) a<c<b<d (4) a<d<b<c

157. Which of the following is correct w.r.t. repolarisation of axons?
(1) Opening of voltage gated Na^+ channels
(2) Closure of voltage gated Na^+ channels and opening of voltage gated K^+ channels
(3) Closure of voltage gated K^+ channels
(4) Closure of both, voltage gated Na^+ and K^+ channels

158. Which of the following statement are correct regarding human female reproductive system ?
A. Oviduct, uterus and vagina constitute the female accessory ducts.
B. Mammary glands are not a part of female reproductive system
C. Uterus is double and it is also known as womb
D. Female external genitalia include mons pubis, labia majora, labia minora, hymen, clitoris and cervix.
(1) A and C only
(2) B and C only
(3) A, C and D only
(4) A and D only

159. Match items in Column-I with those in Column-II and choose the correct option.

Column-I		Column-II
A. Parathormone	(i)	Diabetes mellitus
B. Insulin	(ii)	Tetany
C. Somatotropin	(iii)	Cretinism
D. Thyroxine	(iv)	Dwarfism

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

160. **Assertion (A)** Calorigenic effect is produced by thyroxine.
Reason (R) Thyroxine increases basal metabolic rate of the body.
(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) (A) is false, (R) is true

161. Cleavage is a special type of mitotic division in zygote which moves towards uterus through the

(1) Ampulla (2) Infundibulum

(3) Isthmus (4) Uterus

162. Read the following statements carefully and choose the correct option.

(a) Graafian follicle ruptures to release secondary oocyte after the formation of zona pellucida by granulosa cells.

(b) First meiotic division starts in primary oocyte before birth.

(c) The cycle of events starting from one menstruation till the next one is called menstrual phase.

(d) Menstruation only occurs if the released ovum is not fertilized.

(e) Secretion of estrogen starts from Graafian follicle under effect of gonadotropins synthesized by pars distalis.

(1) Statements (a), (b) and (c) are correct

(2) Statements (a), (c) and (e) are incorrect

(3) Statements (c), (d) and (e) are correct

(4) Statements (b), (c) and (d) are incorrect

163. Match the following evolution concepts in Column-I with Column-II and select the correct answer using the codes given below.

	Column-I		Column-II
a.	Mutation	(i)	Change in population's allele frequencies due to chance alone
b.	Gene flow	(ii)	Source of new allele
c.	Natural	(iii)	selection Immigration and emigration change allele frequencies
d.	Genetic drift	(iv)	Difference in Survival and Reproduction among various individuals

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

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

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

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

164. Select incorrect statement from the following

(1) Addison's disease is elated to underproduction of hormones by adrenal cortex

(2) Graves' disease is form of hyperthyroidism

(3) Acromegaly is related to excessive secretion of growth hormone in adults

(4) Diabetic patients are successfully treated with GH therapy

165. Read the following statements A and B w.r.t bioreactors and choose the correct option.

Statement A : Bioreactors provide the optimum conditions for achieving the desired product.

Statement B : Bioreactors are suited for largescale production of microorganisms under aseptic conditions.

(1) Both statements are correct

(2) Both statements are incorrect

(3) Only statement A is correct

(4) Only statement B is correct

166. Bt toxin gene has been expressed in plants in order to provide resistance against

(a) Tobacco budworm and armyworm

(b) Beetles and corn borers

(c) Flies and mosquitoes

Choose the correct option.

(1) Only (a) and (b)

(2) Only (b) and (c)

(3) Only (a) and (c)

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

167. Select the viral disease that is transmitted by the bite of female mosquito.

(1) Chikungunya (2) Filariasis

(3) Malaria (4) Small pox

168. Darwin's finches have evolved from

(1) Insect eating finches

(2) Flesh eating finches

(3) Seed eating finches

(4) Nectarivores finches

169. Most animals that live in deep oceanic waters are:

(1) Detritivores

(2) Primary consumers

(3) Secondary consumers

(4) Tertiary consumers

170. **Assertion A:** All animals are consumers
Reason R: All animals depends on plants directly or indirectly for their food needs
(1) Both **A** and **R** are correct but R is not the correct explanation of A.
(2) **A** is correct but **R** is not correct.
(3) **A** is not correct but **R** is correct.
(4) Both **A** and **R** are correct but R is the correct explanation of A.

171. Following are venereal diseases except
(1) AIDS (2) Genital warts
(3) Diphtheria (4) Hepatitis - B

172. PAR is
(1) Par active radiations
(2) Photosynthetic air range
(3) Photosynthetically active radiation
(4) Photosynthetically accurate radiation

173. Each trophic level has a certain mass of living material at a particularly time called as
(1) Standing state (2) Standing crop
(3) Stratification (4) Biomagnification

174. Given below are two statements:
Statement I: Julius von Sachs provided evidence for production of glucose when plant grows
Statement II: Jan Ingenhousz showed that only the green parts of plant releases oxygen
(1) Both statement I and statement II are incorrect.
(2) Statement I is correct but statement II is incorrect.
(3) Statement I is incorrect but statement II is correct.
(4) Both statement I and statement II are correct.

175. During photolysis of water proton and hydrogen ions are accumulate in the
(1) Stroma of thylakoid
(2) Matrix of mitochondria
(3) Lumen of thylakoid
(4) Photosystem I

176. What will be the amount of DNA in meiosis-II products if the meiocyte contains 40 pg DNA in G_1-phase?
(1) 20 pg (2) 40 pg
(3) 10pg (4) 80 pg

177. Select the incorrectly matched pair.
(1) Aspergillus — Conidia
(2) Rhizopus — Dikaryophase
(3) Mucor — Coenocytic mycelium
(4) Penicillium — Ascocarp

178. Keel is seen in the flower of
(1) Lily (2) Trifolium
(3) Potato (4) Chill

179. Select the incorrect match.

(1)	Linnaeus's kingdom system of classification	Includes Plantae and Animalia
(2)	Whittaker's system of classification	Brought together Chlamydomonas, Chlorella with Paramoecium and Amoeba in protista
(3)	Recycling of Nutrients	Chemosynthetic bacteria
(4)	Thermoacidophiles	Photosynthetic Obligate aerobes

180. Al of the following ART invoice in vitro fertilization except
(1) ZIFT (2) LCSL
(3) IUT (4) GIFT

Syllabus

FT – 11

Day & Date : **13 June, 2026**
Time : **2: 00 PM to 5: 00 PM**
Physics : **FULL COURSE**
Chemistry : **FULL COURSE**
Biology : **FULL COURSE**