Paper Contributor : SNEHA TUITION Classes

1. The efficiency of an ideal heat engine working between the freezing point (27^0C) and boiling point (667^0C) of cesium is
   (a) 95.95%
   (b)68.01%
   (c) 26.8%
   (d) 40%

2. At what temperature will the rms speed of nitrogen molecules become just sufficient for escaping from the Earth's atmosphere? (Given: Mass of nitrogen molecule m= 2.34 ×10^{-26} kg , Boltzmann's constant k_B = 1.38 × 10^{-23} JK^{-1} escape velocity $v_{e=}$ 11.2 km/s)
   (a) 7.090 ×10^4 K
   (b) 1.234 ×10^4 K
   (c) 5.263 ×10^4 K
   (d) 8.360 ×10^4 K

3. The fundamental frequency in a closed organ pipe is equal to third harmonic of an open organ pipe. If the length of the closed organ pipe is 20cm, then the length of the open organ pipe is
   (a) 60 cm
   (b) 13.33 cm
   (c)240 cm
   (d) 120 cm

4. The volume (V) of a diatomic gas varies with temperature (T), as shown in the graph. The ratio work done by the gas, to the heat absorbed by it, when it undergoes a change from state A to state B, is
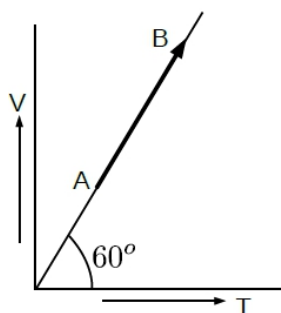
(a) $\dfrac{2}{5}$
(b) $\sqrt{3}$
(c) $\dfrac{1}{\sqrt{3}}$
(d) $\dfrac{2}{7}$

5. A battery consists of a variable number n of identical cells (having internal resistance 'r' each) which are connected in parallel. The terminals of the battery are short-circuited and the current is measured. Which of the graphs shows the correct relationship between I and n ?


(a)

(b)

(c)

(d) n
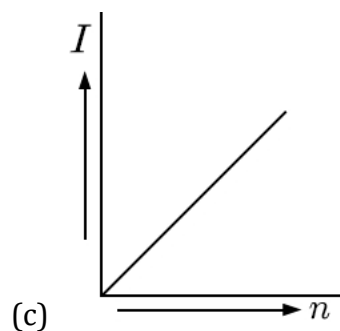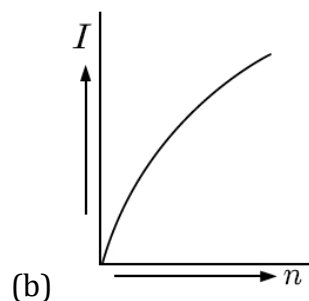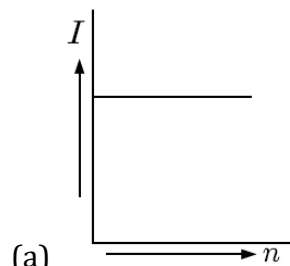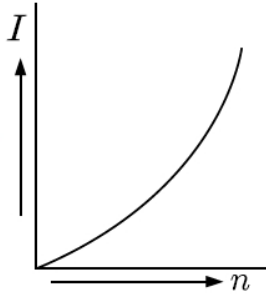
6. A carbon resistor of $(74 \pm 3.7)\,k\Omega$ is to be marked with rings of different colours for its identification. The colour code sequence will be

   (a) Violet-Yellow-Orange-Silver

   (b) Yellow-Green-Violet-Gold

   (c) Violet-Yellow-Orange-Gold

   (d) Green-Orange-Violet-Gold

7. A set of n equal resistors , of value each, are connected in parallel among one another, and then connected to battery of emf E and internal resistance R . The current drawn is I_0. Now, the n resistors are connected in series with the same battery. Then current drawn from battery becomes 20% of original current. The value of n is

   (a) 10   (b) 20

   (c) 11   (d) 5

8. Current sensitivity of a moving coil galvanometer is 1div/mA and its voltage sensitivity (angular deflection per unit voltage applies) is 15 div/V. Resistance of galvanometer is

   (a) 250 Ω (b)25 Ω

   (c) 50 Ω (d) 66.67 Ω

9. A metallic rod of mass per unit length 0.5 kg/m is lying horizontally on a smooth inclined plane which makes an angle of 30^0 with the horizontal. The rod is not allowed to slide by flowing a current through it when a magnetic filed of induction 0.25 T is acting perpendicular to the inclined plane(as shown). The current flowing through the rod to keep it stationary is (Given : $g = 10$ m/s^2)
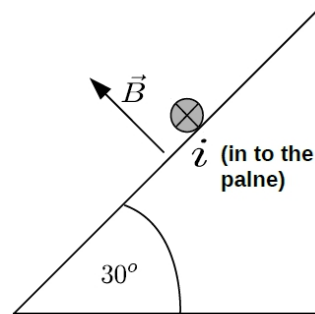
   (a) 10 A   (b) $10\sqrt{3}$ A

   (c) 5 A   (d) $5\sqrt{3}$ A

10. A Thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, horizontal magnetic field is established, then the diamagnetic rod

    (a) is aligned along the magnetic field

    (b) is aligned perpendicular to the magnetic field

    (c) rotates in the magnetic field

    (d) is pushed out of the magnetic field

11. An inductor 10 μ H, a capacitor 100mF and a resistor 50 Ω are connected in series across a source of emf, V = 10 sin(1000t) . The power loss in the circuit is

    (a) 10W   (b) 1W

    (c) 0.1 W   (d) 0.5 W

12. An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm . If the object is displaced through a distance

of 10 cm towards the mirror, the displacement of the image will be

(a) 6cm away from the mirror

(b) 6cm towards the mirror

(c) 36cm towards the mirror

(d) 30cm away from the mirror

13. Am em wave is propagating in a medium with velocity $\vec{v} = v\hat{i}$. The instantaneous oscillating electric field of this em wave is along +z axis. The direction of oscillating magnetic field of the em wave will be along

(a) –z direction   (b) –y direction

(c) +z direction   (d) –x direction

14. The magnetic potential energy stored in a certain inductor is 2mJ, when the current in the inductor is $0.2\sqrt{2}A$. This inductor is of inductance

(a) 50 H   (b) 5H

(c) 0.5 H   (d) 0.05 H

15. The refractive index of a material is $\sqrt{2}$. In this material a prism of air is formed, angle of this prism is 45^0. One of the two refracting surfaces or the air prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is

(a) 45^0 (b) 60^0
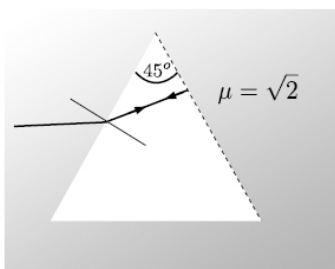
(c) 30^0 (d) $\sin^{-1}\left(\dfrac{1}{\sqrt{3}}\right)$

16. In the circuit shown in the figure, the input voltage V_i is 10 V, V_{BE} = 0 and V_{CE} = 0. The values of I_B , I_C and β are given by,
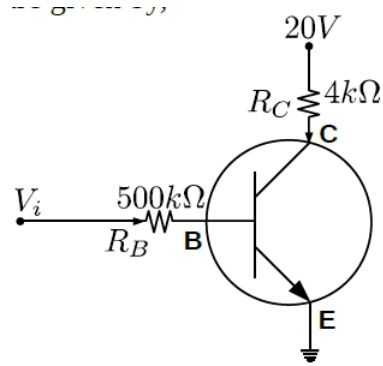
(a) $I_B = 40\mu A, I_C = 50mA, \beta = 250$

(b) $I_B = 20\mu A, I_C = 5mA, \beta = 250$

(c) $I_B = 40\mu A, I_C = 10mA, \beta = 250$

(d) $I_B = 40\mu A, I_C = 5mA, \beta = 125$

17. When a p-n junction diode is forward biased, the energy of electrons (constituting forward current) crossing p-n junction

(a) does not changes

(b) increases

(c) decreases

(d) depends on the type diode

18. In the combination of the following gates the output Y can be written in terms of inputs A and B as
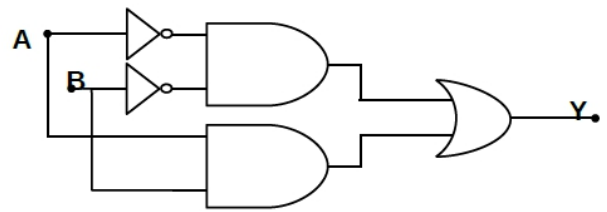
(a) $\overline{A.B}$ (b) $\overline{A.B} + A.B$

(c) $A.\overline{B} + \overline{A}.B$ (d) $\overline{A.B} + A.B$

19. Unpolarized light is incident from air on a plane surface of a material of refractive index μ . At a particular angle of incidence , it is found that the reflected and refracted rays are perpendicular to each other. Which of the following options is correct for this situation?

(a) Reflected light is polarized with its electric vector parallel to the plane of incidence

(b) $i = \sin^{-1}\left(\dfrac{1}{\mu}\right)$

(c) Reflected light is polarized with its electric vector perpendicular to the plane of incidence

(d) $i = \tan^{-1}\left(\dfrac{1}{\mu}\right)$

20. In young's double slit experiment the separation between the slits is 0.5 mm , the wavelength λ of the light used is $5896 \overset{0}{A}$ and distance D between the screen and slits is 50.0 cm. It found that the angular width of the fringes is 0.20^0. To increase the angular width to 0.21^0

(a) increase D without changing λ and d

(b) decrease D without changing λ and d

(c) increase d without changing λ and D

(d) decrease d without changing λ and D

21. A terrestrial telescope is made by introducing an erecting lens of focal length f between objective and eye piece lenses of an astronomical telescope. This causes the length of the telescope tube to increase by an amount equal to

(a) f   (b) 2f
(c) 3f   (d) 4f

22. A tuning fork is used to produce resonance in a glass tube. The length of the air column in this tube can be adjusted by a variable piston. At room temperature of 27^0C two successive resonances are produced at 20 cm and 73 cm of column length. The distance of anti-node from the open end of the tube is

(a) 5.2 cm   (b) 6.5 cm
(c) 3.9 cm   (d) 0.5 cm

23. A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum towards the mean position 18 m/s^2 is at a distance of 2m from the mean position. The time period of oscillation is

(a) 0.48 s   (b) 4.71 s
(c) 2.09 s   (d) 4.18 s

24. The electrostatic energy density between the metal plates of a parallel plate capacitor C connected to constant voltage supply V and area A, is

(a) Independent of distance between the plates

(b) Proportional to the square root of the distance between the plates

(c) Linearly proportional to the distance between the plates

(d) Inversely proportional to the square of distance between the plates

25. An alpha particle and a proton start to fall in region having only electric field. Then the ratio of time taken by proton to the time

taken by alpha particle to fall through same height is

(a) 1:2   (b) 2:1

(c) $1:\sqrt{2}$ (d) $\sqrt{2}:1$

26. The kinetic energies of a planet in the an elliptical orbit about the Sun, at position A, B, C and D are K_A, K_B, K_C and K_D, respectively. AC is the major axis and BSD is perpendicular to AC at the position of Sun S as shown in the figure. Then,
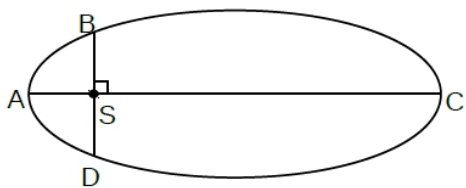

(a) $K_A < K_B < K_C < K_D$

(b) $K_A > K_B > K_C > K_D$

(c) $K_A < K_B = K_D < K_C$

(d) $K_A > K_B = K_D > K_C$

27. A hollow sphere is in rolling motion. In rolling motion a body possesses translational kinetic energy (K_t) as well as rotational kinetic energy (K_r) simultaneously. The ration $K_t : (K_t + K_r)$ for the sphere is

(a) 3 : 5   (b) 5 : 7

(c) 7 : 10   (d) 5 : 3

28. A liquid spherical drop is rotating freely about its symmetry axis in free space. The drop flattens due to internal forces. Then which of the following physical quantities would remain constant for the drop?
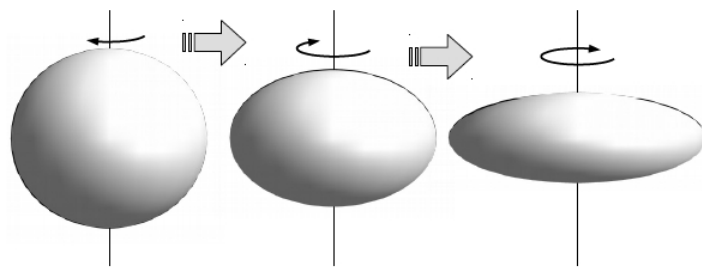
(a) Angular velocity

(b) Rotational kinetic energy

(c) Moment of inertia

(d) Angular Momentum

29. If universal gravitational constant becomes ten times smaller, which of the following is **not** correct

(a) Orbit of the moon should increase

(b) Density of atmosphere will decrease

(c) Lifting objects on ground will take more effort

(d) 'g' on earth will change

30. A toy car with charge moves on a frictionless horizontal plane surface under the influence of a uniform electric field $\vec{E}$, its velocity increases from 0 to 4 m/s in one second duration. At that instant the filed is change to $-\dfrac{\vec{E}}{2}$. The car continues to move for three more seconds under the influence of this field. The average velocity and the average speed of the toy car between 0 to 4 second are respectively

(a) $\dfrac{5}{4}m/s, \dfrac{7}{4}m/s$ (b) $\dfrac{7}{4}m/s, \dfrac{5}{4}m/s$

(c) $0m/s, 2m/s$ (d) $\dfrac{3}{2}m/s, \dfrac{3}{2}m/s$

31. A small block of mass m is place on concave wedge ABC as shown in figure. The wedge is

given an acceleration towards right. The relation between and for the block to remain stationary on the wedge is
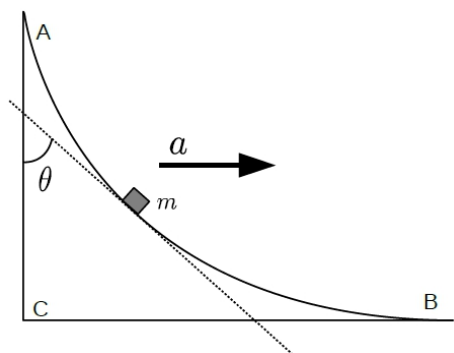
(a) $a = \dfrac{g}{\cos ec\theta}$

(b) $a = g\cos\theta$

(c) $a = \dfrac{g}{\sin\theta}$

(d) $a = g\cot\theta$

32. The moment of the force $\vec{F} = 4\hat{i} - 5\hat{j} - 6\hat{k}$, at $(2,2,3)$, about the point $(2,-2,-2)$, is given by

(a) $-7\hat{i} - 4\hat{j} - 8\hat{k}$

(b) $-29\hat{i} - 4\hat{j} - 16\hat{k}$

(c) $7\hat{i} + 4\hat{j} + 8\hat{k}$

(d) $29\hat{i} + 4\hat{j} + 16\hat{k}$

33. A student measured the diameter of a small steel ball using a screw gauge having 100 divisions on circular scale and 1mm least count of main scale. The main scale reading is 5mm and 42nd division of the circular scale coincides with the main scale. If screw gauge has zero error of +0.02mm , the correct diameter of the ball is,

(a) 5.44mm

(b) 5.4mm

(c) 5.40mm

(d) 5.42mm

34. Which on the following statements is **correct**?

(a) Work done by static friction is always zero

(b) Work done by kinetic friction can never be zero.

(c) Coefficient of sliding friction has dimensions of length.

(d) Work done by static friction may or may not zero.

35. Three objects, A: (a hollow sphere), B: (a solid cylinder), and C: (a hollow cylinder), each have the same mass M and radius R. The all spin with the same angular speed ω about their own symmetry axes. The amount of work (W) required to bring them to rest, would satisfy the relation

(a) $W_A > W_B > W_C$

(b) $Wc > W_A > W_B$

(c) $Wc > W_B > W_C$

(d) $W_A = W_B = W_C$

36. A moving block having mass , collides with another block having mass 4m. The lighter block comes to rest after collision. When the initial velocity of the lighter block is υ , then percentage loss in Kinetic Energy is
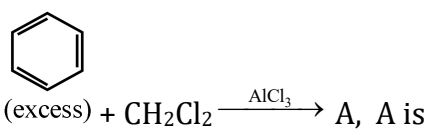
(a) 100%

(b) 75%

(c) 50%

(d) 25%

37. Two circular tracks of different radii are joined at the lowest point as shown in the figure. A body initially at rest at the point A slides along the frictionless track or radius R, and just completes vertical circle or radius r. Then R and r are related as
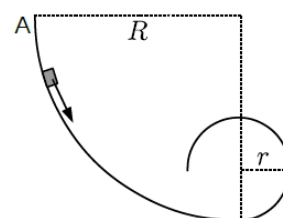
(a) $R = \dfrac{5}{2}r$

(b) R=2r

(c) $R = \dfrac{7}{2}r$

(d) $R = \dfrac{5}{4}r$

38. Length of a wire, having cross-sectional area A, is increased by Δl on applying a force F. If the wire is melted and redrawn in a rod of cross-sectional area 5A, then how much force is needed to stretch the rod by the same amount?

   (a) F
   (b) 5F
   (c) 25F
   (d) 125F

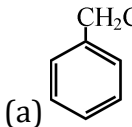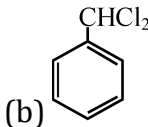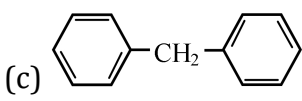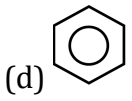39. A sample of 0.5g of water at 100^0C and normal pressure ($1.013 \times 10^5 Nm^{-2}$) requires 60cal of heat energy to convert to steam at 100^0C . If the volume of the steam produced is 200.5cc , then change in internal energy of the sample, is (Given 1cal = 4.2 J)

   (a) 252J
   (b) 231.74 J
   (c) 20.26 J
   (d) 208.7 J

40. The power radiated by a body of emissivity e = 0.8 , is P and it radiates maximum energy at wavelength λ_0 . If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\dfrac{\lambda_0}{3}$, so now the power radiated is

   (a) 9P
   (b) 7.2 P
   (c) 81 P
   (d) 64.8 P

41. If P is the power delivered by viscous force when a spherical ball of radius r, is moving with terminal velocity (in a viscous liquid), then $P \propto r^n$, where the value of n is

   (a) 2
   (b) 3
   (c) 4
   (d) 5

42. An electron moving with velocity v_0 in upwards direction, at t = 0 , starts falling under gravity with acceleration due to gravity g. Initially its deBroglie wavelength is λ_0 . Then its deBroglie wavelength at time t is

   (a) $\dfrac{\lambda_0}{v_0 - gt}$
   (b) $\dfrac{\lambda_0 v_0}{v_0 - gt}$
   (c) λ_0
   (d) $\lambda_0 t$

43. For a radioactive material half life is 1 month. If initially there are 10^6 active nuclei, then how long will it take to reduce the number of active nuclei to 125,000 .

   (a) 45 days
   (b) 60 days
   (c) 90 days
   (d) 100 days

44. The ratio of potential energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

   (a) 2 : -1
   (b) 2 : 1
   (c) 1 : 1
   (d) 1 : 2

45. When the light of frequency $2v_0$ (where v_0 is threshold frequency), is incident on a metal plate, the maximum velocity of electrons emitted is v_1 . When the frequency of the incident radiation is increased to $10v_0$, the maximum velocity of electrons emitted from the same plate is v_2. The ratio of is $v_1 : v_2$ is

   (a) 1 : 5
   (b) $1 : \sqrt{5}$
   (c) 1 : 9
   (d) 1 : 3

46. Which of the following does not show tautomerism ?

   (a) $C_6H_5COCH_3$
   (b) CH_3CHO
   (c) CH_3COCH_3
   (d) $C_6H_5COC(CH_3)_3$

47. Calculate the bond energy of C-H bond from the following data :

   (A) $C(s) + 2H_2(g) \rightarrow CH_4(g)$; $\Delta H = -74.8$ KJ

(B) $H_2(g) \rightarrow 2H(g)$; $\Delta H = 435.4$ KJ

(C) $C(s) \rightarrow C(g)$; $\Delta H = 718.4$ KJ.

(a) 316.0 KJ/mol   (b) 416 KJ/mol

(c) 516 KJ/mol   (d) 616.0 KJ/mol

48. The occurrence of reaction is impossible if

  (a) H is +ve ;   S is also +ve but $\Delta H < T\Delta S$

  (b) H is –ve ;   S is also –ve but $\Delta H < T\Delta S$

  (c) ΔH is –ve ; ΔS is +ve

  (d) ΔH is +ve ; ΔS is –ve

49. A transition metal M can exist in two oxidation states +2 and +3. It forms an oxide whose experimental formula is given by M_xO where $x < 1$. Then the ratio of metal ions in + 3 state to those in +2 state is given by

  (a) $(1 - x)/(1 + x)$ (b) $1 + 2x$

  (c) $1 + x/2$ (d) $2(1 - x)/ (3x - 2)$

50. When the equilibrium : $2 NH_3 \rightleftharpoons N_2 + 3H_2$ has been established, NH_3 is found to be 20% dissociated. The ratio of total number of moles at equilibrium to the moles of NH_3 at equilibrium is -

  (a) 3/2   (b) 2/3

  (c) 3/1   (d) 1/3

51. In which of the following medium SrF_3 shows highest solubility

  (a) Water   (b) 0.1 M NaCl

  (c) 0.1 M NaBr   (d) 0.1 M NaI

52. If 0.5 moles of $BaCl_2$ is mixed with 0.2 moles of Na_3PO_4, the maximum number of moles of $Ba_3(PO_4)_2$ that can be formed is -

  (a) 0.2   (b) 0.5

  (c) 0.3   (d) 0.1

53. The rate constant for the reaction, $2N_2O_5 \rightarrow 4NO_2 + O_2$ is 3×10^{-5} s^{-1}. If the rate of reaction is 2.4×10^{-5} mol L^{-1}s^{-1}, then concentration of N_2O_5 is-

  (a) 1.4 (M)   (b) 1.2 (M)

  (c) 0.04 (M)   (d) 0.8 (M)

54.

(excess) $+ CH_2Cl_2 \xrightarrow{AlCl_3}$ A, A is

55. 8.4 g $MgCO_3$ on heating leaves behind a residue weighing 4.0 g, carbon dioxide released into the atmosphere at S.T.P. will be -

  (a) 2.24 L   (b) 4.48 L

  (c) 1.12 L   (d) 0.56 L

56. The reduction potential of the two half cell reactions (occurring in an electrochemical cell) are

$PbSO_4 + 2e^- \rightarrow Pb + SO_4^{2-}$ $(E^0 = - 0.31V)$

$Ag^+_{(aq)} + e^- \rightarrow Ag(s)$ $(E^0 = + 0.80V)$

The feasible reaction will be -

  (a) $Pb + SO_4^{2-} + 2Ag^+_{(aq)} \rightarrow 2Ag(s) + PbSO_4$

  (b) $PbSO_4 + 2Ag^+_{(aq)} \rightarrow Pb + SO_4^{2-} + 2Ag(s)$

  (c) $Pb + SO_4^{2-} + Ag_{(s)} \rightarrow Ag^+_{(aq)} + PbSO_4$

  (d) $PbSO_4^+ Ag_{(s)} \rightarrow Ag^+_{(aq)} + Pb + SO_4^{2-}$

57. Which of the following is not an example of green chemistry?

(a) Catalytic dehydrogenation of the diethanolamine without using cyanide and formaldehyde
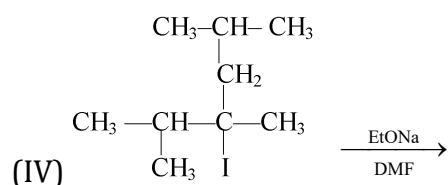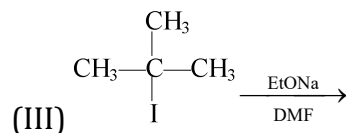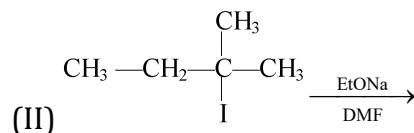
(b) Replacement of CFCs by CO_2 as blowing agent in the manufacture of polystyrene foam sheets

(c) Reacting methylamine and phosgene to produce methyl isocyanate

(d) Replacement of organotins by 'sea-nine' as antifouling compound in sea marines.

58. Consider :
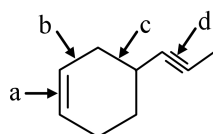
The correct increasing order of bond length of the bonds marked is -

(a) a < b < c < d 　　(b) d < a < b < c

(c) d < a < c < b 　　(d) d < c < a < b

59. Arrange the following reaction in order of increasing SN²?

(I) $CH_3 - CH - C - CH_3$ with CH_2-CH_3, CH_3, I $\xrightarrow[DMF]{EtO\ Na}$

(II) $CH_3 - CH_2 - C - CH_3$ with CH_3, I $\xrightarrow[DMF]{EtONa}$

(III) $CH_3 - C - CH_3$ with CH_3, I $\xrightarrow[DMF]{EtONa}$

(IV) (structure) $\xrightarrow[DMF]{EtONa}$
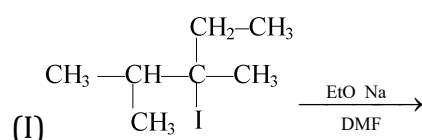
(a) I > IV > II > III 　(b) IV < I <II < III

(c) I > II > III > IV 　(d) IV > II > I > II

60. The correct order of the O–O bond length in O_2, H_2O_2 and O_3 is -

(a) $O_3 > H_2O_2 > O_2$ 　(b) $O_2 > H_2O_2 > O_3$

(c) $O_2 > O_3 > H_2O_2$ 　(d) $H_2O_2 > O_3 > O_2$

61. (A) $\xrightarrow{Cl_2/h\nu}$ (B) $\xrightarrow{aq.KOH}$ (C) $\xrightarrow{[O]}$ CH_3CHO, Identify A, B & C -

(a) Ethylalcohol, Ethyl chloride & Ethane

(b) Ethane, Ethylchloride & $CH_3 – CH_2 – OH$

(c) Propane Propylchloride & $CH_3 – CH_2 – CH_2 – OH$

(d) All the above

62. What would happen when a solution of potassium chromate is treated with an dilute nitric acid?

(a) CrO_4^{2-} is reduced to +3 state of Cr

(b) CrO_4^{2-} is oxidized to +7 state of Cr

(c) Cr^{3+} and $Cr_2O_7^{2-}$ are formed

(d) $Cr_2O_7^{2-}$ and H_2O are formed

63. Not TRUE about phosphorus (P_4)

(a) Six P–P single bonds

(b) Four P–P single bonds

(c) contains Four lone pairs

(d) P-P-P angle of 60

64. For the readox reaction, $MnO_4^- + C_2O_4^{2-} + H^+ \rightarrow Mn^{+2}+CO_2+ H_2O$ the correct coefficients of the reactants for the balanced reaction are–

	MnO_4^-	$C_2O_4^{2-}$	H^+
(a)	2	5	16
(b)	16	5	2
(c)	5	16	2
(d)	2	16	5

65. Antiseptic dettol is a mixture of

(a) chloroxylenol and terpeneol

(b) bethinol and terpineol

(c) chlorxylenol and bethinol

(d) terpineol and formaldehyde

66. In the chemical reaction, $CH_3CH_2NH_2$ + $CHCl_3$ + 3KOH → (A) + (B) + $3H_2O$, the compounds

(A) and (B) are respectively –

(a) C_2H_5CN and 3KCl

(b) $CH_3CH_2CONH_2$ and 3KCl

(c) C_2H_5NC and K_2CO_3

(d) C_2H_5NC and 3KCl

67 Select the correct order for the given properties–

(I) Thermal stability: $BaCO_3$ > $SrCO_3$ > $CaCO_3$ > $MgCO_3$

(II) Basic Nature : ZnO > BeO > MgO > CaO

(iii) Solubility in water : LiOH > NaOH > KOH > RbOH

(IV) Melting point : NaF > NaCl > NaBr > NaI

(a) I, IV   (b) I, II and IV

(c) II, III   (d) All are correct

68. Examine the following two structures for the anilinium ion and choose the correct statement from the ones given below
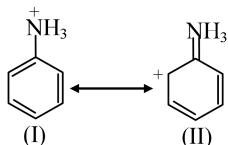
(a) II is not an acceptable canonical structure because carbonium ions are less stable than ammonium ions

(b) II is not an acceptable canonical structure because it is non-aromatic

(c) II is not an acceptable canonical structure because the nitrogen has ten valence electrons

(d) II is an acceptable canonical structure.

69. Smoke is an example of

(a) Gas dispersed in liquid

(b) Gas dispersed in solid

(c) Solid dispersed in gas

(d) Solid dispersed in solid

70. During the preparation of ethane by Kolbe's electrolytic method using inert electrodes the pH of the electrolyte -

(a) Increases progressively as the reaction proceeds

(b) Decreases progressively as the reaction proceeds

(c) Remains constant throughout the reaction

(d) May decrease if the concentration of the electrolyte is not very high.

71. Consider the following two reaction sequences.
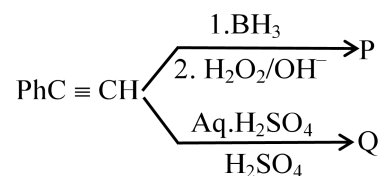
The two products (P) and (Q) are, respectively,

(a) $PhCOCH_3$ and $PhCH_2CHO$

(b) $PhCH_2CHO$ and $PhCH_2CHO$

(c) $PhCH_2CHO$ and $PhCOCH_3$

(d) $PhCOCH_3$ and $PhCOCH_3$

72. Boron has an exceptionally high melting point in the group 13th elements, because -

(a) boron has the smallest size in the group

(b) boron atoms are joined together by vanderwaals force

(c) boron is covalent solid

(d) boron has higher ionisation energy

73. Phosgene gas is –

(a) $COCl_2$ (b) $CCl_3 NO2$

(c) $CaCl_2$ (d) $(CaO)_2Cl$

74. Which out of the following gases is obtained when ammonium dichromate is heated -

(a) ammonium chromate

(b) Ammonia

(c) Nitrogen

(d) Nitrous oxide

75. Which of the following will not undergo aldol condensation ?

(a) Acetaldehyde

(b) Propionaldehyde

(c) Trideuterio acetaldehyde

(d) Benzaldehyde

76. In the complex $[Co(NH_3)_6]^{3+}$ the species acting as Lewis acid and Lewis bases are respectively –

(a) Co^{2+}, NH_3 (b) NH_3, Co

(c) Co^{3+}, NH_3 (d) NH_3, Co^{3+}

77. Match List I with List II and Select the correct answer using the codes given below the lists:

List 1 List 2

Complex Ions Magnetic Moment μm

Bohr Magneton

A. $[Fe(CN)_6]^{-4}$ 1. 1.73

B. $[Ti(H_2O)_6]^{3+}$ 2. 5.93

C. $[Cr(H_2O)_6]^{3+}$ 3. 0.00

D. $Ni(H_2O)_6]^{2+}$ 4. 2.83

E. $[FeF_6]^{-3}$ 5. 3.88

Codes :

	A	B	C	D	E
(a)	1	2	3	4	5
(b)	3	1	5	4	2
(c)	2	3	4	5	1
(d)	4	5	1	2	3

78. Ionic radii is/are :

(a) directly proportional to effective nuclear charge

(b) directly proportional to square of effective nuclear charge

(c) inversely proportional to effective nuclear charge

(d) inversely proportional to square of effective nuclear charge

79. What is the half life of a radioactive substance if 75% of any given amount of the substance disintegrates in 60 minutes

(a) 2 Hours (b) 30 Minutes

(c) 45 Minutes (d) 20 Minutes

80. An electron has velocity x ms^{-1}. For a proton to have the same de-Broglie wavelength, the velocity will be approximately –

(a) $\dfrac{1840}{x}$ (b) $\dfrac{x}{1840}$

(c) 1840x (d) x

81. Which excited state of Be^{3+} has the same orbit radius as that of the ground state of hydrogen atom ?

(a) 3 (b) 2

(c) 4 (d 1

82. Cellulose the most important constituent of plant cell wall is made up of -

(a) branched chain of glucose molecules linked by α $(1 \rightarrow 6)$ glycosidic bonds at the site of branching

(b) unbranched chain of glucose molecules linked by α $(1 \rightarrow 4)$ glycosidic bonds

(c) branched chain of glucose molecules linked by β $(1 \rightarrow 4)$ glycosidic bond in straight chain and α $(1 \rightarrow 6)$ glycosidic bond at the site of branching

(d) unbranched chain of glucose molecules linked by β $(1 \rightarrow 4)$ glycosidic bonds

83. XeF_6 on partial hydrolysis produces

(a) XeF_2 (b) $XeOF_2$

(c) $XeOF_4$ (d) XeO_3

84. Which of the following mineral does not contain Al ?

(a) Cryolite   (b) Bauxite

(c) Kaolinite   (d) Siderite

85 An azeotropic solution of two liquids has boiling point lower than either when it -

(a) shows a negative deviation from Raoult's law

(b) shows a positive deviation from Raoult's law

(c) shows no deviation from Raoult's law

(d) is saturated

86. Let us consider an esterification of isotopically labelled carboxylic acid -

$$CH_3 - \overset{O}{\overset{\|}{C}} - \overset{18}{O}H + CH_3CH_2OH \xrightarrow{H^+} (x) \text{ and}$$
(Y), (X) and (Y) respectively are -

(a) $CH_3 - \overset{O}{\overset{\|}{C}} - \overset{18}{O}C_2H_5$; H_2O

(b) $CH_3 - \overset{O}{\overset{\|}{C}} - OC_2H_5$; $H_2^{18}O$

(c) $CH_3 - \overset{O}{\overset{\|}{C}} - OC_2H_5$; H_2O

(d) both (a) and (b)

87. The behaviour of a real gas is usually depicted by plotting compression factor

$$Z \left(= \frac{V_{real}}{V_{ideal}} \right)$$ versus P at a constant temperature. At hight temperature and high pressure , Z , is usually more than one. This fact can be explained by vanderwaals equation when-

(a) The constant 'a' is negligible and not 'b'

(b) The constant 'b' is negligible and not 'a'

(c) Both the constant 'a' and 'b' are negligible

(d) Both the constants 'a' and 'b' are not negligible

88. The elimination of HX from an alkyl halide forms an alkene. The order of the elimination reaction is -

(a) 3° halide > 2° halides > 1° halides

(b) 1° halide > 2° halides > 3° halides

(c) 1° halide = 2° halides > 3° halides

(d) 2° halide > 1° halides > 3° halides

89. Calgon is an industrial name give to -

(a) Normal sodium phosphate

(b) Sodium meta-aluminate

(c) Sodium hexametaphosphate

(d) Hydrated sodium aluminium silicate

90. When the d-orbitals involved in the hybridisation are inner (n-1) d-orbitals; the complex formed are referred to as –

(a) High spin complexes

(b) Low spin complexes

(c) Zero spin complexes

(d) Positive spin complexes

91. Find incorrect statement with regard to meiosis :-

(a) During meiosis only a single cycle of DNA replication take place.

(b) In Anaphase - I sister chromatids remain associated at their centromeres.

(c) Diakinesis represents transition to metaphase

(d) Four haploid cells are formed at the end of meiosis-II which are genetically identical.

92. The lysosome differs from the ER because it's:-

(a) having unit membrane

(b) bear ribosomes on their surface

(c) Enzymes optimally active at acidic pH

(d) Site for formation of glycoprotein and glycolipids

93. Lactose is :-

(a) Reducing monosaccharide

(b) Made up of β .D. Galactose & β -D-Glucose

(c) Milk sugar

(d) Both (b) & (c)

94. When the common characteristic goes on decreasing :-

(a) As we go higher from species to kingdom.

(b) As we go lower from kingdom to species.

(c) As we go both lower and higher in taxonomical hierarchy.

(d) None of these

95. In the column-I and column-II pathogen and related disease are given, match the correct pathogen of its causing disease :-

Column-I		Column-II	
(i)	Bacteria	(A)	Potato spindle tuber disease
(ii)	Fungi	(B)	Leaf rolling and curling
(iii)	Virus	(C)	Wheat rust disease
(iv)	Viroids	(D)	Citrus canker

(a) i-D, ii-C, iii-A, iv-B

(b) i-D, ii-C, iii-B, iv-A

(c) i-A, ii-B, iii-C, iv-D

(d) i-C, ii-D, iii-B, iv-A

96. Which of the following cell junction helps to stop substances from leaking across a tissue ?

(a) Gap junction   (b) Tight junction

(c) Adhering junction (d) All of these

97. The maximum volume of air a person can breathe in after a forced expiration :-

(a) TV + ERV   (b) TV + IRV

(c) TV + ERV + IRV   (d) ERV + RV

98.

List-I	List-II
(a) Gliding joint	Between the carpals
(b) Cartilaginous joint	Between the adjacent vertebrae
(c) Pivot Joint	Between atlas and axis
(d) Hinge joing	Knee Joint
(e) Fibrous joint	Between skull bones
(f) Ball and socket Joint	Between humerus and pectorial girdle

How many joints are correctly matched :

(a) Two   (b) Four

(c) Five   (d) Six

99. Read the following statements :-

(I) Dialysis fluid contain all the constituents as in plasma except ----(A)-----

(II) A nonchordate animal having flame cells as excretory structure is ------(B)-------

(III) Reabsorption of water from distal parts of the tubule is facilitated by hormone -----(C)---

In above statements (A), (B), (C) are :-

(a) Glucose, Planaria, ADH

(b) Nitrogenous wastes, Planaria, ADH

(c) Nitrogenous wastes, Amphioxus, ADH

(d) NaCl, Rotifers, Aldosterone

100. In humans at the end of the first meiotic division, the male germ cells differentiate into the :-

(a) new spermatogonia

(b) spermatids

(c) secondary spermatocytes

(d) primary spermatocytes

101. Emergency contraceptives are effective if used within :-

(a) 72 hrs of coitus

(b) 72 hrs of ovulation

(c) 72 hrs of menstruation

(d) 72 hrs of implantation

102. The restriction endonuclease enzyme binds to the DNA & cut -

(a) any one strand of the double helix

(b) each of the two strands at specific points in their base - sugar bonds.

(c) each of the two strands at specific points in their base - phosphate bonds.

(d) each of the two strands at specific points in their sugar - phosphate, back bones.

103. Choose the incorrect statement :-

(a) The Montreal protocol is associated with the control of emission of ozone depleting substances

(b) Methane and carbon dioxide are green house gases

(c) Dobson units are used to measure oxygen content

(d) Use of incinerators is crucial to disposal of hospital wastes

104. Consider the following four statements (A-D) and select the option which includes all the correct ones only.

(A) Cross-breeding allows the desirable qualities of two different species to be combined.

(B) Wax is used in the preparation of cosmetics and polishes of various kinds.

(C) Pisciculture is catching processing and selling of fishes

(D) Inbreeding helps in accumulation of superior genes.

Options :

(a) Statement (B), (C) and (D)

(b) Statement (A) and (D)

(c) Statement (A) and (C)

(d) Statement (A), (C) and (D)

105. Amensalism is an association between two species where :

(a) one species is harmed and other is benefitted

(b) one species is harmed and other is unaffected

(c) one species is benefitted and other is unaffected

(d) both the species are harmed

106. According to Allen's Rule, the mammals from colder climates have :

(a) shorter ears and longer limbs

(b) longer ears and shorter limbs

(c) longer ears and longer limbs

(d) shorter ears and shorter limbs

107. Read the following four statements (A-D) :-

(A) A single out cross often helps to overcome inbreeding depression

(B) Artificial insemination helps to overcome several problems of normal matings

(C) Bee keeping is easy and do not require any specialised knowledge

(D) Catla, rohu and common carp are fresh water fish.

How many of the above statements are correct?

(a) One 　　　　(b) Two

(c) Three 　　　(d) Four

108. When the resources are limited, which are the phases exhibited by an organism during growth?

(a) Lag, Log, exponential, deacceleration, asymptomatic

(b) Lag, log, asymptomatic, deacceleration, exponential

(c) Lag, log, deacceleration, exponential, asymptomatic

(d) None of these

109. AT.S. of monocot stem can be distinguished from that of a dicot stem by observing the :-

(a) Vascular bundles, which are scattered in monocot stem.

(b) Sunken stomata

(c) Radial vascular bundles

(d) Concentric vascular bundles

110. Match the column :-

Column -A		Column - B	
(A)	Pennatula	(i)	Portuguese man of war
(B)	Gorgonia	(ii)	Bath sponge
(C)	Meandrina	(iii)	Seapen
(D)	Euspongia	(iv)	Sea fan
(E)	Physalia	(v)	Brain coral

(a) A-iii, B-iv, C-v, D-i, E-ii

(b) A-iv, B-iii, C-ii, D-v, E-i

(c) A-iii, B-iv, C-v, D-ii, E-i

(d) A-iii, B-iv, C-ii, D-v, E-i

111. Identify the product marked (A) and (B) in the following pathway :-

3-Phosphoglyceric acid
↓
↓
(A) ⟶ Pyrovate
CO_2, (B) → NAD^+
NADH + H^+
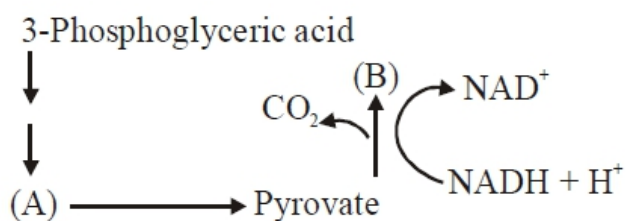
(a) (A) 2 phospho glycerate; (B) Acetyl CoA

(b) (A) PEP; (B) Ethyl alcohol

(c) (A) PEP (B) Lactic acid

(d) (A) PEP (B) acetyl CoA

112. (A) Essential elements are components of energy related compounds

(B) Essential elements are components of structural element of cells

(C) Mn^{2+} is an activator of alcohol dehydrogenase

(a) All are correct

(b) Only (A) is incorrect

(c) Only (B) is incorrect

(d) Only (C) is incorrect

113. Mature graafian follicle is generally present in the ovary of a healthy human female around stet:

(a) 5-8 day of menstrual cycle

(b) 11-17 day of menstrual cycle

(c) 18-23 day of menstrual cycle

(d) 24-28 day of menstrual cycle

114. Which of the following pairs of structures is correctly matched with their correct description?

	Structure	Description
a	Shoulder joint and elbow joint	Hinge joint
b	Tibia and fibula	from parts of knee joint
c	11th and 12th pairs of ribes	False ribs and articulate indirectly with sternum
d (4)	Frontal and parietal	Bones of cranium

115. Select out the correct match :-

a	Auxin	Break of dormancy
b	Gibberellin	Delay in senescence
c	Cytokinin	Root hair formation
d	Ethylene	Adventitious shoot formation

116. In the sequence of development process in plant life which of the following is correct :-

(a) Plasmatic growth always results in to elongation

(b) Plasmatic growth always results in cell division

(c) Maturation is the result of differentiation

(d) Mature cell never undergo senescence

117. Which of the following is an outcome of redifferentiation :-

(a) Callus formation from leaf

(b) Interfascicular cambium

(c) Tumour formation

(d) Cork

118. The below diagram represents the TS of Gut. identify A, B, C and D :-
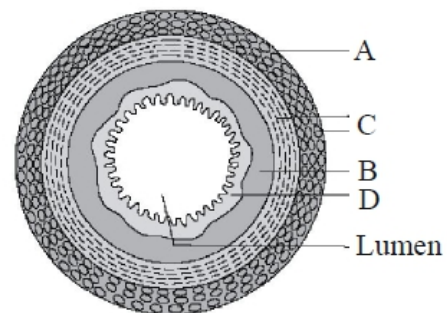
(a) A - Serosa; B - Muscularis; C - Submucosa; D - Mucosa

(b) A - Muscularis; B - Serosa; C - Submucosa; D - Mucosa

(c) A - Serosa; B - Muscularis; C - Mucosa; D - Submucosa

(d) A - Serosa; B - Submucosa; C - Muscularis; D - Mucosa

119. Find out the incorrect sequence of substrate, enzyme and product :-

(a) Small intestine : Proteins $\xrightarrow{Pepsin}$ Amino acids

(b) Stomach : Fats $\xrightarrow{Bile}$ Micelles

(c) Duodenum : Triglycerides $\xrightarrow{Lipase}$ Dioglycerides

(d) Small intestine : Starch $\xrightarrow{\alpha-Amylase}$ Maltose

120. Photochemical phase does not includes :-
    (a) Photosplitting of water
    (b) Formation of ATP & NADPH
    (c) Release of O_2
    (d) Fixation of CO_2

121. Which of the following is not the function of large intestine?
    (a) Absorption of some water, minerals and certain drugs.
    (b) Nutrient absorption
    (c) Secretion of mucus to lubricate faeces
    (d) Temporary storage of faeces in rectum

122. Identify the correct and incorrect match about respiratory volume and capacities and mark the correct answer

    i. **Inspiratory capacity (IC)** = Tidal Volume + Residual Volume

    ii. **Vital Capacity (VC)** = Tidal Volume (TV) + Inspiratory Reserve Volume (IRV) + Expiratory Reserve Volume (ERV).

    iii. **Residual Volume (RV)** = Vital Capacity (VC) – Inspiratory Reserve Volume (IRV)

    iv. **Tidal Volume (TV)** = Inspiratory Capacity (IC) – Inspiratory Reserve Volume (IRV)

    Options:
    (a) (i) Incorrect,   (ii) Incorrect,
        (iii) Incorrect,   (iv) Correct
    (b) (i) Incorrect,   (ii) Correct,
        (iii) Incorrect,   (iv) Correct
    (c) (i) Correct,   (ii) Correct,
        (iii) Incorrect,   (iv) Correct
    (d) (i) Correct,   (ii) Incorrect,
        (iii) Correct,   (iv) Incorrect

123. Respiration is the :-
    (a) Amphibolism
    (b) Production of usable energy currency
    (c) Source of carbon skeletons for synthesis of other useful compounds
    (d) All the above

124. The oxygen - haemoglobin dissociation curve will show a right shift in case of
    (a) High pCO_2
    (b) High pO_2
    (c) Low temperature
    (d) Less H^+ concentration

125. Match the terms given under Column 'I' with their functions given under Column 'II' and select the answer from the options given below:

Column-I		Column-II	
A.	Lymphatic System	i.	Carries oxygenated blood
B.	Pulmonary vein	ii.	Immune Response
C.	Thrombocytes	iii.	To drain back the tissue fluid to the circulatory system
D.	Lymphocytes	iv.	Coagulation of blood

    (a) A-ii, B-i, C-iv, D-iii
    (b) A-iii, B-i, C-iv, D-ii
    (c) A-iii, B-i, C-iii, D-iv
    (d) A-ii, B-i, C-iii, D-iv

126. Which one of the following is not a disorder of bone?
    (a) Arthritis
    (b) Osteoporosis
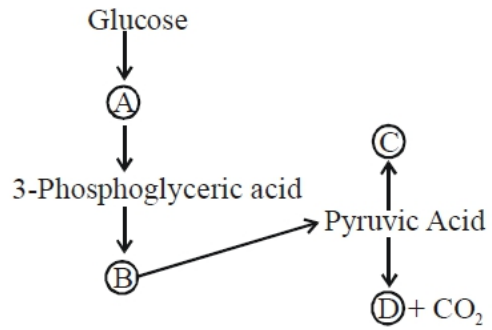   (c) Rickets
    (d) Atherosclerosis

127. The immediate cause of opening or closing of the stomata is a change in :-
(a) Osmotic pressure of Guard cells
(b) Turgidity of Guard cells
(c) Turgidity of subsidiary cells
(d) pH of guard cells

128. The conducting part of respiratory tract does not help in :-
(a) Transport the atmospheric air to the alveoli.
(b) Clear air from foreign particles
(c) Humidifie and bring the air to body temperature
(d) Diffusion of O_2 and CO_2 between blood and air

129. Regarding to membrane transport select out the incorrect statement :-
(a) Protein channels of plasma membrane are not strictly always open
(b) Porins are responsible for construction of membrane channels
(c) Across plasma membrane water always move through water channels
(d) Water can also move through lipid molecules

130. Which substances are reabsorbed actively in nephron ?
(a) Glucose, water
(b) Glucose, Na+
(c) Amino acids, Urea
(d) Na+, water

131.

Glucose

3-Phosphoglyceric acid → Pyruvic Acid

A → 3-Phosphoglyceric acid → B

C → Pyruvic Acid → D + CO_2

	A	B	C	D
a	PGAL	PEP	C_2H_5OH	Lactic Acid
b	PGAL	PEP	Lactic Acid	C_2H_5OH
c	G-6-P	2-PGA	C_2H_5OH	Lactic Acid
d	F-6-P	PEP	Lactic Acid	C_2H_5OH

132. Which of the following groups of animals are ammonotelic in nature ?
(a) Many bony fishes, amphibians, Insects
(b) Marine fishes, amphibians, aquatic insects
(c) Mammals, Birds, Reptiles
(d) Many bony fishes, aquatic amphibians, Aquatic insects

133. Which of the following changes can occur in response to increased Angiotensin-II level ?
(a) Decrease in GFR
(b) Inhibition of aldosterone
(c) Decrease in Bloob Osmotic Pressure
(d) Increase in the glomerular blood pressure

134. Partial pressure of carbon dioxide in Alveoli, atmospheric air and tissues will be :-
(a) 0.3, 40, 45   (b) 40, 0.3, 45
(c) 0.3, 104, 28 (d) 40, 0.3, 28

135. Which of the following is not a function of glucocorticoides, particularly cortisol ?

(a) Stimulate gluconeogenesis, lipolysis and proteolysis

(b) Involved in maintaining the cardio-vascular system as well as the kidney function

(c) produces anti inflamatory reaction and suppresses the immune response

(d) Suppresses production of WBCs and RBCs

136. Choose the incorrect statement of following :-

(a) Dinoflagellates have stiff cellulose plates on the outer surface

(b) Euglenoids have two flagella one lies longitudinally and the other transversely

(c) Slime mould's spores are dispersed by air current

(d) In diatoms the cell wall from two thin overlapping shells

137. Fats and oils are glycerides, in which fatty acids are esterified with :-

(a) Glycerole   (b) Amino acid

(c) Fatty acid   (d) Sugar

138. Given below are the structure of two different amino acids
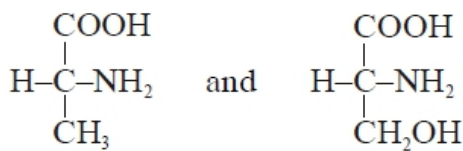
These amino acids show which type of nature respectively :-

(a) Acidic, Alkaline

(b) Alkaline, Neutral

(c) Neutral, Neutral

(d) Alkaline, Alkaline

139. Choose the correct match :-

(a) Mesosomes - Cell respiration

(b) Plasmid - bear photosynthetic pigments

(c) Flagella - help in formation of conjugation tube

(d) Capsula - help in locomotion

140.
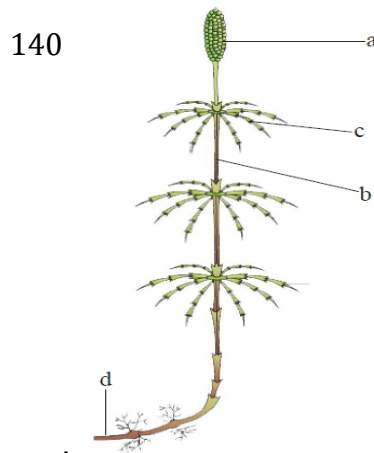
In above diagram identify the a, b, c and d

(a) a - Strobilus, b - Node, c - Internode, d - Rhizoids

(b) a - Cone, b - Stem, c - leaves, d - Rhizoids

(c) a - Strobilus, b - leaves, c - stem, d - Rhizome

(d) a - Strobilus, b - Internode, c - Node, d - Rhizome

141.
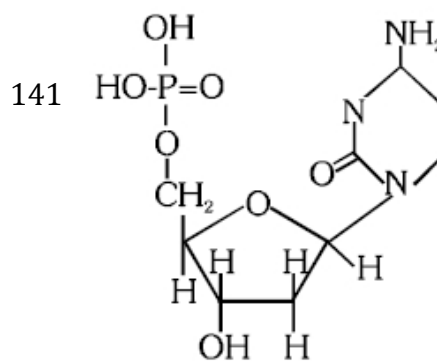
Given structure exhibit

(a) A nucleoside of RNA

(b) A nucleotide of RNA

(c) A nucleoside of DNA

(d) A nucleotide of DNA

142.

Identify the A, B, C and D respectively :-

(a) Seta, Leaves, Capsula, Rhizoids

(b) Leaves, Capsule, Seta, Rhizoids

(c) Capsule, Seta, leaves, Rhizome

(d) Capsule, Seta, leaves, Rhizoids

143. Nucleolus is -

(a) Spherical structure found in cytoplasm near nucleus

(b) Spherical structure inside nucleus and having r RNA

(c) Rod shaped structure in cytoplasm near the nucleus

(d) Rod shaped structure inside nucleus and having m-RNA

144. A biochemist measured the amount of DNA in cells growing in the laboratory and found the quantity of DNA in a cell doubled. When this quantity increased -
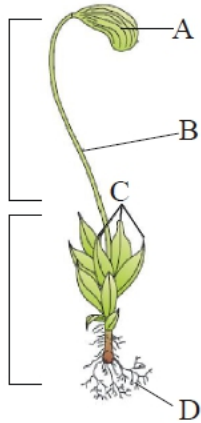
(a) During the M phase of the cell cycle

(b) Between prophase and metaphase of Mitosis

(c) Between the G1 and G2 phase of the cell cycle

(d) Between prophase I and prophase II of meiosis

145. Which of the following epithelial tissue is incorrectly matched with its location?

(a) Simple squamous epithelium - Air sacs of lungs

(b) Simple cuboidal epithelium - ducts of glands

(c) Ciliated epithelium - inner surface of fallopian tubes

(d) Compound epithelium - lining of stomach

146. Given below is the diagrammatic sketch of a certain type of connective tissue Identify the parts labelled A, B, C and D and select the right option about them : -

(a) Macrophage, Collagen, Mast cell ,Fibroblast fibres

(b) Macrophage, Fibroblast fibres, Collagen, Mast cell

(c) Mast cell, Fibroblast fibres, Macrophage, Collagen

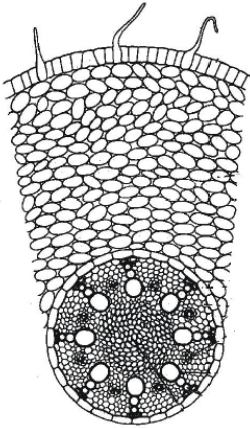(d) Mast cell, Macrophage, Collagen, Fibroblast fibres

147. Binomial system of nomenclature means that every organism has :-

(a) One scientific nomenclature consisting of two epithet

(b) A name given by two scientists

(c) One scientific nomenclature consisting of one specific epithet

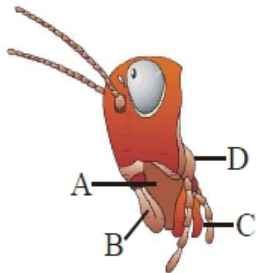(d) A number in an international catalogue by which an organism is identified

148.

Which structure is shown in above diagram :-

(a) Monocot root   (b) Dicot root

(c) Dicot stem   (d) Monocot stem

149.

	A	B	C	D
(a)	Maxilla	Mandible	Labrum	Labium
(b)	Mandible	Labrum	Labium	Maxilla
(c)	Mandible	Labrum	Maxilla	Labium
(d)	Labium	Maxilla	Mandible	Labrum

150.   Nucleosome = A + B + Linker DNA + H1 histone.

(i) 'B' is a group of histone proteins. It contains how many types of histone proteins?

(ii) What is 'A'?

Choose the correct answer :-

(a) (i)-8 types, (ii)-Deoxyribonucleic acid.

(b) (i)-2 types, (ii)-Ribonucleic acid.

(c) (i)-6 types, (ii)-Ribonucleic acid.

(d) (i)-4 types, (ii)-Deoxyribonucleic acid.

151. Centrioles are differ from cilia or flagella :-

(A) in number of subtubules in each peripheral microtubule.

(B) in number of radial spokes.

(C) in arrangement of microtubules.

(D) in containing proteinaceous central hub.

(E) in being surrounded by double membrane.

Choose the correct statements:-

(a) A, C and D   (b) A, B, C and D

(c) A, B and C   (d) B, C, D and E

152. Many cells in adult animals exit ....'A'..... to enter an inactive stage called ....'B'....... Cells in this stage remain metabolically ....'C'...... and.........'D'....... Choose the correct match :-

(a) A = Karyokinesis, B = G0 phase, C = inactive, D = divide

(b) A = G_1 phase, B = G_0 phase, C = inactive, D = not divide

(c) A = Cytokinesis, B = Polyteny, C = active, D = divide

(d) A = G1 phase, B = Quiescent stage, C = active, D = not divide

153. Which one of the following is a event of pachytene ?

(a) Clearly appearance of tetrads

(b) Synapsis

(c) Dissolution of Syneptonemal complex

(d) In Oocytes of Vertebrates, can last for Months or Year

154. The cells arranged in multiple layer between epidermis and pericycle form :-

(a) Hypodermis   (b) Ground tissue

(c) Cortex   (d) Pith

155. The first formed primary phloem consist of narrow sieve tube and referrred to :-

(a) Prophloem   (b) Protophloem

(c) Metaphloem   (d) Ray initial

156. Which is common in DNA and RNA :-

(a) Thymine   (b) Uracil

(c) Ribose   (d) H_3PO_4

157. Match the column-A with column-B and find out the correct answer :-

Column-A		Column-B	
(a)	Pollution indicator	(P)	Fungal component
(b)	Mycobiont	(Q)	Viroid
(c)	Potato spindle tube disease	(R)	Lichen
(d)	Obligate parasite	(S)	Virus

(a) a-R, b-P, c-S, d-Q

(b) a-R, b-S, c-P, d-Q

(c) a-S, b-R, c-P, d-Q

(d) a-R, b-P, c-Q, d-S

158. In which system of classification both vegetative and sexual characters are given equal weightage

(a) Rational classification

(b) Natural classification

(c) Artificial classification

(d) Phylogenetic classification

159. Following figure represents :-

(a) Hygroscopic roots of orchids

(b) Respiratory roots of *Avecinia*

(c) Pneumatophores of *Rhizophora*

(d) Aerial roots of *Monstera*

160. In which of following phylum, larva possess bilateral symmetry and while adults shows radial symmetry ?

(a) Coelenterata   (b) Mollusca

(c) Arthropoda   (d) Echinodermata

161. In which of the following group of animals, bioluminescence is well marked.

(a) Poriferans   (b) Flat worms

(c) Molluscas   (d) Ctenophores

162. Which of following exhibit alternation of generation [Metagenesis] ?

(a) *Pleurobrachia*   (b) *Spongilla*

(c) *Obelia*   (d) *Loligo*

163. The tissue involved in secondary growth, are the two meristems namely

(a) Apical meristem and vascular cambium

(b) Intercalary meristem and cork cambium

(c) Vascular cambium & cork cambium

(d) All of the above

164. Which of the following wood does not conduct water but gives only mechanical support to the stem.

(a) Sap wood

(b) Spring wood

(c) Autumn wood

(d) Heart wood

165. Pyrinoids are protein particle found in :-

(a) in the member of phaeophyceae

(b) in the member of chlorophyceae

(c) Both in the member of phaeophyceae and chlorophyceae

(d) in the member of Rhodophyceae

166. Which of the following is incorrect :-

(a) Cell wall, plastids and a large central vacuole absent in animal cells

(b) Eukaryotes included all protists, plants, animals and monera

(c) Polysomes involved in protein biosynthesis

(d) Electron microscope was invented by Knoll and Ruska

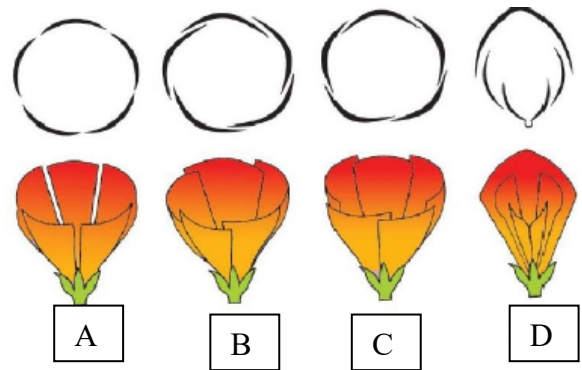167. In the given figure of structural unit of chromosome, name the parts A, B & C ?
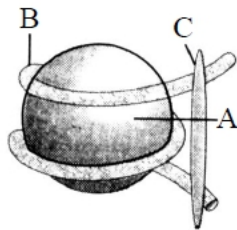
	A	B	C
(1)	DNA	Histone octamer	H_1 histone
(2)	Histone octamer	H_1 histone	DNA
(3)	Histone octamer	DNA	H_1 histone
(4)	DNA	H_1 histone	Histone octamer

168. Synthesis of steroidal hormone is a function of:-

(a) Ribosomes   (b) Rough ER

(c) Smooth ER   (d) All

169. Which figure shows aestivation of Fabaceae family :-

(a) (A)   (b) (B)

(c) (C)   (d) (D)

170. In which one type of taxonomy is helpful in solving evolutionary problem in phylogenetic classification :-

(a) Numerical taxonomy

(b) Cytotaxonomy

(c) Chemotaxonomy

(d) All of the above

171. In isogamous method of sexual Reproduction in algae. Isogametes are :-

(a) always motile and similar in size

(b) may be non motile and similar in size

(c) will imotile but disimilar in size

(d) Both (a) and (b)

172. In the member of chlorophyceae :-

(a) Outer all wall is cellulosic which inner all wall is pectic

(b) Outer cell wall is pectin and inner all wall is cellulosic

(c) Outer cell wall is lignified and inner cell wall is cellulosic

(d) All of the above

173. Bryophytes play an important role in which type of ecological succession :-

(a) Hydrosere

(b) Xerosere

(c) Psamosere

(d) None of the above

174. Alary muscles in cockroach are related with :-

(a) Brain   (b) Heart

(c) Gut   (d) Wings

175. Find out the incorrect match.

A Ciliated epithelium – Bronchioles and fallopian tubes

B Compound epithelium – ducts of salivary gland

C Dense regular connective tissue – tendons and ligaments

D Areolar tissue – Present in the skin

(a) A & C   (b) B & D

(c) A & D   (d) Only D

176. Middle lamella layer is mainly consist of :-

(a) Xylem, pectin

(b) Calcium-pectate

(c) Suberin-lignin   (d) Plasmodesmata

177. Centromere divides during :-

(a) Pachytene   (b) Anaphase–II

(c) Prophase   (d) Metaphase

178. Nitrogen containing Homopolysaccharide is :-

(a) Chitin   (b) Starch

(c) Glycogen   (d) Cellulose

179.
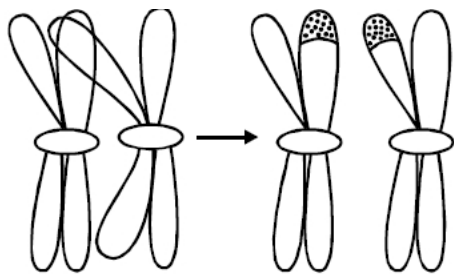
Given above is the representation of certain event of particular stages of a type of cell division. Which this stage ?

(a) Prophase of mitosis

(b) Both prophase and metaphase

(c) Prophase-I during meiosis

(d) Prophase-II during meiosis

180. Given below is the diagramatic sectional view of the body of animal which shows :-

(a) Diploblastic, coelomate animals

(b) Triploblastic, coelomate animals

(c) Diploblastic, acoelomate animals

(d) Triploblastic, acoelomate animals

Best of Luck

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PHYSICS

Answer key

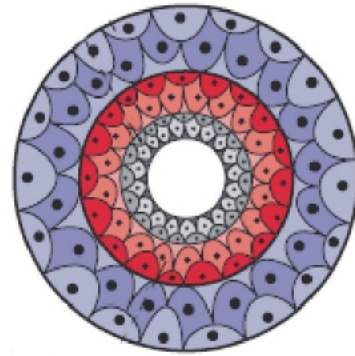| Q	ANS	Q	ANS	Q	ANS
1	B	16	B	31	D
2	A	17	C	32	B
3	D	18	D	33	C
4	D	19	C	34	D
5	C	20	D	35	B
6	C	21	D	36	B
7	D	22	B	37	A
8	D	23	C	38	C
9	A	24	D	39	B
10	D	25	C	40	C
11	B	26	D	41	D
12	A	27	A	42	B
13	B	28	D	43	C
14	D	29	C	44	B
15	C	30	A	45	D

CHEMISTRY
ANSWER KEY

Q	ANS	Q	ANS	Q	ANS
46	D	61	B	76	C
47	B	62	D	77	B
48	B	63	B	78	C
49	D	64	A	79	B
50	A	65	A	80	B
51	D	66	D	81	D
52	D	67	A	82	D
53	D	68	C	83	C
54	C	69	C	84	D
55	A	70	A	85	B
56	A	71	C	86	B
57	C	72	C	87	A
58	B	73	A	88	A
59	B	74	C	89	C
60	D	75	D	90	B

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Answer Key BIOLOGY

Q	ANS	Q	ANS	Q	ANS	Q	ANS	Q	ANS	Q	ANS
91	D	106	D	121	B	136	B	151	A	166	B
92	C	107	C	122	B	137	A	152	D	167	C
93	D	108	A	123	D	138	C	153	A	168	C
94	A	109	A	124	A	139	A	154	C	169	D
95	B	110	C	125	B	140	D	155	B	170	D
96	B	111	B	126	D	141	D	156	D	171	D
97	C	112	D	127	B	142	D	157	D	172	B
98	D	113	B	128	D	143	B	158	C	173	B
99	C	114	B	129	D	144	C	159	C	174	B
100	C	115	B	130	B	145	D	160	D	175	B
101	A	116	C	131	B	146	B	161	D	176	B
102	D	117	D	132	D	147	A	162	C	177	B
103	C	118	D	133	D	148	A	163	C	178	A
104	A	119	A	134	B	149	B	164	D	179	C
105	B	120	D	135	D	150	D	165	B	180	D