

PACE-IIT & MEDICAL

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MT - 01 – (Medical 2019 Aspirants) SOLUTION

- | | | | |
|--------|---------|---------|---------|
| 1. (2) | 9. (2) | 17. (3) | 25. (4) |
| 2. (1) | 10. (2) | 18. (1) | 26. (2) |
| 3. (1) | 11. (3) | 19. (1) | 27. (1) |
| 4. (1) | 12. (1) | 20. (4) | 28. (3) |
| 5. (3) | 13. (1) | 21. (3) | 29. (2) |
| 6. (3) | 14. (3) | 22. (2) | 30. (3) |
| 7. (4) | 15. (4) | 23. (2) | |
| 8. (4) | 16. (2) | 24. (3) | |

31.

$|\vec{a}_1| = 1, |\vec{a}_2| = 1$
 $|\vec{a}_1 + \vec{a}_2| = \sqrt{3}$
 $\Rightarrow a_1^2 + a_2^2 + 2a_1a_2\cos\theta = 3$
 $1 + 1 + 2(1)(1)\cos\theta = 3$
 $\cos\theta = \frac{1}{2} \rightarrow (1)$
 $(\vec{a}_1 - \vec{a}_2) \cdot (2\vec{a}_1 + \vec{a}_2) = 2(\vec{a}_1 \cdot \vec{a}_1) + (\vec{a}_1 \cdot \vec{a}_2) - 2(\vec{a}_1 \cdot \vec{a}_2) - (\vec{a}_2 \cdot \vec{a}_2)$
 $= 2a_1^2 - (\vec{a}_1 \cdot \vec{a}_2) - a_2^2$
 $= 2a_1^2 - (a_1a_2\cos\theta) - a_2^2$
 $= (2)(1) - (1)(1)\left(\frac{1}{2}\right) - 1$
 $= \frac{1}{2}$
 collect option is (3)

(32) $\frac{P+Q}{P-Q} = \frac{3}{1} \Rightarrow P+Q = 3P-3Q$
 $2P = 4Q$
 $P = 2Q$
 collect option is (1)

(33) $\frac{\Delta A}{A} = 2\frac{\Delta a}{a} + 3\frac{\Delta b}{b} + \frac{\Delta c}{c} + \frac{1}{2}\frac{\Delta d}{d}$
 $= 2(1) + 3(3) + 2 + \frac{1}{2}(2)$
 $= 2 + 9 + 2 + 1$
 $= 14\%$
 collect option is (3)

(34)

In addition or subtraction, the final result should retain as many as decimal places as are there in the number with the least decimal places.

In multiplication or division, the final result should retain as many significant figures as are there in the number with the least significant figures.

According to above rules, option (1) is correct.

(35) $F_1 + F_2 = 16$, consider F_1 is smaller force

From figure,

$$F_2 \cos \theta = 8 \rightarrow (1)$$

$$F_2 \sin \theta = F_1 \rightarrow (2)$$

$$(1)^2 + (2)^2 \Rightarrow$$

$$F_2^2 = 8^2 + F_1^2$$

$$(16 - F_1)^2 = 64 + F_1^2$$

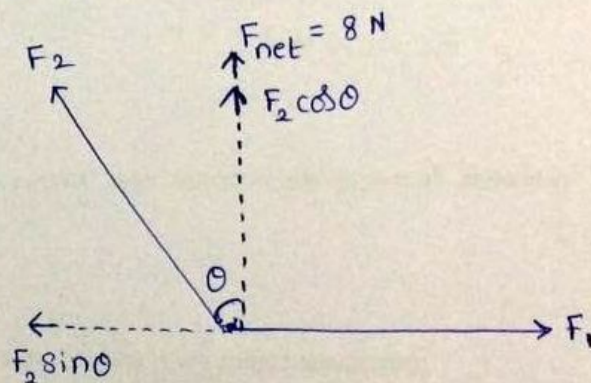
$$256 + F_1^2 - 32F_1 = 64 + F_1^2$$

$$32F_1 = 192 \Rightarrow \boxed{F_1 = 6 \text{ N}}$$

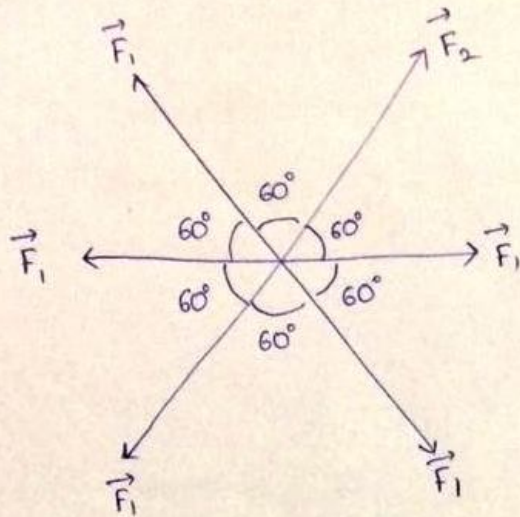
$$F_1 + F_2 = 16$$

$$6 + F_2 = 16 \Rightarrow \boxed{F_2 = 10 \text{ N}}$$

correct option is (1).



36)



$$F_{\text{net}} = |F_1 - F_2|$$

correct option is (3)

37)

$$\vec{a} \cdot \vec{b} = |\vec{a} \times \vec{b}|$$

$$abc \cos \theta = abs \sin \theta$$

$$\theta = 45^\circ$$

$$\left| \frac{\vec{a} + \vec{b}}{\vec{a} - \vec{b}} \right| = \frac{\sqrt{a^2 + b^2 + 2abc \cos \theta}}{\sqrt{a^2 + b^2 - 2abc \cos \theta}} = \frac{\sqrt{4 + 8 + 2(2)(2\sqrt{2}) \frac{1}{\sqrt{2}}}}{\sqrt{4 + 8 - 2(2)(2\sqrt{2}) \frac{1}{\sqrt{2}}}}$$

$$= \sqrt{\frac{20}{4}} = \sqrt{5}$$

correct option is (2)

$$38) (\vec{a} - \vec{b}) \perp \vec{b} \Rightarrow (\vec{a} - \vec{b}) \cdot \vec{b} = 0$$

$$(\vec{a} \cdot \vec{b}) - (\vec{b} \cdot \vec{b}) = 0$$

$$abc \cos \theta = b^2$$

$$a \cos \theta = b \rightarrow (1)$$

$$|\vec{a} - \vec{b}| = \frac{1}{2} |\vec{a}|$$

squaring on both sides

$$|\vec{a} - \vec{b}|^2 = \frac{1}{4} |\vec{a}|^2$$

$$a^2 + b^2 - 2abc \cos \theta = \frac{1}{4} a^2$$

$$a^2 + b^2 - 2b(b) = \frac{1}{4} a^2$$

$$b^2 = \frac{3}{4} a^2 \Rightarrow b = \frac{\sqrt{3}}{2} a$$

 \therefore From eqn (1),

$$a \cos \theta = \frac{\sqrt{3}}{2} a$$

$$\cos \theta = \frac{\sqrt{3}}{2}$$

$$\theta = \frac{\pi}{6}$$

correct option is (1)

$$69) \quad (\vec{a} + \vec{b}) \perp \vec{a}$$

$$\Rightarrow (\vec{a} + \vec{b}) \cdot \vec{a} = 0$$

$$\Rightarrow (\vec{a} \cdot \vec{a}) + (\vec{b} \cdot \vec{a}) = 0$$

$$a^2 + abc \cos \theta = 0$$

$$abc \cos \theta = -a^2$$

$$\cos \theta = -\frac{a}{b}$$

$$\theta = \cos^{-1} \left(-\frac{a}{b} \right)$$

correct option is (2)

$$40) \quad \text{consider } \vec{a} = a\hat{i}, \vec{b} = b\hat{j}, \vec{c} = c\hat{k}$$

clearly options (a), (c), (d) are true.

$$\text{now, } \frac{\vec{a} \times \vec{b}}{|\vec{a} \times \vec{b}|} = \frac{(ab \sin 90^\circ) \hat{k}}{ab \sin 90^\circ} = \hat{k}, \text{ whereas } \vec{c} = c\hat{k}$$

\(\therefore\) only option (2) is wrong.

$$41) \quad x = \frac{v_0}{a} (1 - e^{-at})$$

$$\text{Dimensions of } a = [T^{-1}]$$

$\frac{v_0}{a}$ has dimensions of x .

$$x = \frac{v_0}{a} \Rightarrow v_0 = ax$$

$$\Rightarrow v_0 = [LT^{-1}]$$

correct option is (2)

$$42) \quad \frac{hc}{G} = \frac{[ML^2T^{-1}][LT^{-1}]}{[M^{-1}L^3T^{-2}]} = [M^2] = kg^2$$

correct option is (1)

43) Pressure $P = \frac{a-t^2}{b\alpha}$, here a and t^2 have same dimensions.

$\therefore P \neq \frac{a}{b}$

\therefore Dimensionally $P = \frac{a}{b\alpha} \Rightarrow \frac{a}{b} = P\alpha$
 $\Rightarrow \frac{a}{b} = [ML^{-1}T^{-2}][L]$
 $\frac{a}{b} = [ML^0T^{-2}]$

correct option is (2)

44) $K = \frac{P^2}{2m} \Rightarrow K \propto P^2$
 $\Rightarrow \frac{K_2 - K_1}{K_1} = \left(\frac{P_2}{P_1}\right)^2 - 1$
 $\Rightarrow \frac{\Delta K}{K} \times 100\% = \left[\left(\frac{P_2}{P_1}\right)^2 - 1\right] \times 100\%$
 $= \left[\left(\frac{120}{100}\right)^2 - 1\right] \times 100\%$
 $= 44\%$

correct option is (3)

45) Force $F \propto A^\alpha V^y D^z$
 $[MLT^{-2}] \propto [L^2]^\alpha [LT^{-1}]^y [ML^{-3}]^z$
 $[MLT^{-2}] \propto [M^z L^{2\alpha+y-3z} T^{-y}]$

On comparing the powers of M on both sides, $\boxed{z=1}$

on comparing the powers of T on both sides, $-2 = -y \Rightarrow \boxed{y=2}$

" " " " L " " ,

$2\alpha + y - 3z = 1$

$2\alpha + 2 - 3 = 1$

$2\alpha = 2 \Rightarrow \boxed{\alpha=1}$

$\therefore F \propto AV^2D$

correct option is (1).

$$\chi_{\text{H}_2\text{O}} = 1 - 0.1 = 0.9 = n_{\text{H}_2\text{O}}$$

$$w_{\text{H}_2\text{O}} = 0.9 \times 18\text{g} = \frac{0.9 \times 18}{1000} \text{kg}$$

$$\text{Molality} = \frac{n_{\text{urea}}}{w_{\text{H}_2\text{O}} (\text{kg})} = \frac{0.1}{\left(\frac{0.9 \times 18}{1000}\right)} = \frac{1000}{9 \times 18}$$

Alternatively:

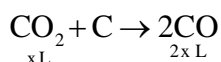
$$\chi_{\text{urea}} = 0.1, \chi_{\text{H}_2\text{O}} = 1 - 0.1 = 0.9$$

$$m = \frac{\chi_B}{\chi_A} \times \frac{1000}{M_A} = \frac{0.1}{0.9} \times \frac{1000}{18} = \frac{1000}{9 \times 18}$$

53. (3)

Let the volume of CO_2 in the original mixture be x L.

$$\text{Volume of CO} = (100 - x) \text{L}$$



Total volume, i.e., volume of CO after reaction = $(100 - x) + 2x = 100 + x$

$$100 + x = 120 \Rightarrow x = 20$$

54. (2)

$$\text{Molality} = \frac{1000M}{1000d - M \times M_B} = \frac{1000 \times 2.05}{1000 \times 1.02 - 2.05 \times 60}$$

$$= \frac{2050}{1020 - 123} = \frac{2050}{897} = 2.285 \text{ mol kg}^{-1}$$

Alternatively,

$$2.05 \text{ M} \Rightarrow n = 2.05, V = 1000 \text{ mL}$$

$$\text{Weight of 1000 mL solution} = Vd = 1000 \times 1.02 \text{ g} = 1020 \text{g}$$

$$\text{Weight of 2.05 mol CH}_3\text{COOH} = 2.05 \times 60 = 123 \text{g}$$

$$\text{Weight of solvent} = 1020 - 123 = 897 \text{ g}$$

$$\text{Molality} = \frac{n_B}{w_{\text{solvent}}(\text{kg})} = \frac{2.05}{(897/1000)} = 2.285 \text{ mol kg}^{-1}$$

55. (1)

$$\text{C}\% = \frac{2.48}{6.2} \times 100 = 40\%$$

$$(\text{H}_2\text{O})\% = 100 - 40 = 60\%$$

$$\text{Ratio of moles of C} : (\text{H}_2\text{O}) = \frac{40}{12} : \frac{60}{18} = \frac{10}{3} : \frac{10}{3} = 1 : 1$$

$$\text{Empirical formula} = \text{CH}_2\text{O}$$

56. (2)

$$0.04 = \frac{n_{\text{C}_2\text{H}_5\text{OH}}}{n_{\text{C}_2\text{H}_5\text{OH}} + n_{\text{H}_2\text{O}}} \text{ in 1L}$$

$$0.04 = \frac{n_{\text{C}_2\text{H}_2\text{OH}}}{n_{\text{C}_2\text{H}_5\text{OH}} + 55.55}$$

$n_{\text{C}_2\text{H}_5\text{OH}}$ in 1 L aqueous solution = 2.31 moles

Molarity = 2.31 M

57. (3)

Container I: $P_2 V_2 = P_1 V_1$

$$P_2 = \frac{6 \times 10}{30} = 2 \text{ atm}$$

container II: $P_2 = \frac{10 \times 20}{30} = 6.67 \text{ atm}$

Total pressure = 2 + 6.67 = 8.67 atm

58. (3)

Let 32 g of each of H_2 , He and O_2 are mixed. (LCM of molar masses)

$$\text{Mole fraction of } \text{O}_2 = \frac{\frac{32}{32}}{\frac{32}{2} + \frac{32}{4} + \frac{32}{32}} = \frac{1}{25}$$

Partial pressure of $\text{O}_2 = \text{Mole fraction of } \text{O}_2 \times P_{\text{total}} = \frac{1}{25} \times 7.5 = 0.3 \text{ atm}$

59. (3)

$$\frac{\bar{v}}{\alpha} = \frac{\sqrt{\frac{8RT}{\pi M}}}{\sqrt{\frac{2RT}{M}}} = \sqrt{\frac{4}{\pi}} = \frac{2}{\sqrt{\pi}}$$

60. (3)

Higher the critical temperature, easier is the liquefaction of the gas.

61. (4)

CO and N_2 both have equal molecular mass and so equal rates of diffusion.

62. (3)

Because the flask is open to the atmosphere,

$$P_1 V_1 (\text{at } 27^\circ \text{C}) = P_2 V_2 (\text{at } 477^\circ \text{C})$$

$$\Rightarrow n_1 R T_1 = n_2 (\text{left}) R T_2$$

For $n_1 = 100$

$$100 \times (27 + 273) = n_2 (477 + 273)$$

$$n_2 = \frac{100 \times 300}{750} = 40$$

Percentage of air expelled = 100 - 40 = 60%

63. (2)

$$r_u = \frac{1}{3} r_{\text{He}} \quad \Rightarrow \quad \frac{r_u}{r_{\text{He}}} = \frac{1}{3}$$

$$\sqrt{\frac{M_u}{M_{\text{He}}}} = \frac{r_{\text{He}}}{r_u} \Rightarrow M_u = M_{\text{He}} \times \left(\frac{r_{\text{He}}}{r_u} \right)^2 = 4 \times 9 = 36$$

64. (3)

$$\mu = \sqrt{\frac{3RT}{M}}, E = \frac{3}{2}RT \Rightarrow RT = \frac{2}{3}E$$

$$\mu = \sqrt{\frac{3 \times \frac{2}{3}E}{M}} = \sqrt{\frac{2E}{M}}$$

65. (3)

$$n_A = \frac{1}{M_A}; n_B = \frac{2}{M_B}; \frac{n_A}{n_B} = \frac{M_B}{2M_A} \quad \dots(i)$$

$$P_A = 2 \text{ bar}; P_A + P_B = 3 \text{ bar}; P_B = 3 - 2 = 1 \text{ bar}$$

$$\frac{P_A V_A}{P_B V_B} = \frac{n_A RT}{n_B RT} \Rightarrow \frac{n_A}{n_B} = \frac{P_A}{P_B} = 2 \quad \dots(ii)$$

$$\text{From equations (i) and (ii) } \frac{M_B}{2M_A} = 2 \Rightarrow M_B = 4M_A$$

66. (1)

At low pressure, the co-volume 'b' is neglected.

$$\left(P + \frac{a}{V^2}\right)(V) = RT$$

$$PV + \frac{a}{V} = RT$$

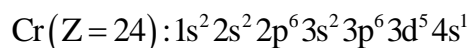
$$\frac{PV}{RT} + \frac{a}{VRT} = 1$$

$$Z = 1 - \frac{a}{VRT}$$

67. (4)

$$\begin{aligned} \text{Angular momentum} &= \sqrt{l(l+1)} \times \frac{h}{2\pi} = \sqrt{l(l+1)} \times \hbar \\ &= \sqrt{2(2+1)}\hbar = \sqrt{6} \times \hbar \end{aligned}$$

68. (4)



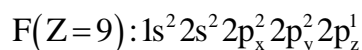
Total electrons in $l=1$, i.e., p-subshell = 6 + 6 = 12

Total electrons in $l=2$, i.e., d-subshell = 5.

69. (3)

$$\frac{\text{Sp. charge of } \alpha\text{-particle}}{\text{Sp. charge of proton}} = \frac{\left(\frac{e}{m}\right)_{\alpha\text{-particle}}}{\left(\frac{e}{m}\right)_{\text{proton}}} = \frac{\left(\frac{2}{4}\right)}{\left(\frac{1}{1}\right)} = \frac{\left(\frac{1}{2}\right)}{1} = \frac{1}{2} : 1 \text{ or } 1 : 2$$

70. (4)



9th electron is $2p_z^1$, which has $n=2, l=1, m=\pm 1, 0$

$$s = +\frac{1}{2} \text{ or } -\frac{1}{2}.$$

71. (1)

Ti^{2+} ($Z = 22$), V^{3+} ($Z = 23$), Cr^{4+} ($Z = 24$) and Mn^{5+} ($Z = 25$) have same electronic configuration $[\text{Ar}]3d^2$. They have the same number of 3d-electrons, i.e., 2.

72. (3)

73. (3)

$$\frac{(\Delta x \cdot m \cdot \Delta v)_e}{(\Delta x \cdot m \cdot \Delta v)_p} = \frac{h/4\pi}{h/4\pi} = 1$$

$$\frac{m_e \cdot \Delta v_e}{m_p \cdot \Delta v_p} = 1$$

$$\frac{\Delta v_e}{\Delta v_p} = \frac{m_p}{m_e} = 1836:1$$

74. (3)

$$\frac{\text{KE}_1}{\text{KE}_2} = \frac{h(v_1 - v_0)}{h(v_2 - v_0)}; \frac{\text{KE}_1}{\text{KE}_2} = \frac{1}{x} \text{ (given)}$$

$$\Rightarrow \frac{v_1 - v_0}{v_2 - v_0} = \frac{1}{x} \quad \Rightarrow xv_1 - xv_0 = v_2 - v_0$$

$$\Rightarrow xv_1 - v_2 = xv_0 - v_0 \Rightarrow v_0 = \frac{xv_1 - v_2}{x - 1}$$

75. (3)

$$\frac{1}{\lambda_{1(\text{emitted})}} + \frac{1}{\lambda_{2(\text{emitted})}} = \frac{1}{\lambda_{(\text{absorbed})}}$$

$$\frac{1}{\lambda_{2(\text{emitted})}} = \frac{1}{2400} - \frac{1}{6000} = \frac{6000 - 2400}{2400 \times 6000} = \frac{3600}{2400 \times 6000} = \frac{1}{4000}$$

$$\Rightarrow \lambda_2 = 4000 \text{ \AA}.$$

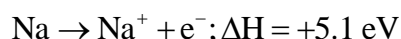
76. (3)

$$\text{Velocity} \propto \frac{Z}{n}$$

77. (2)

78. (1)

According to Lavoisier Laplace law:

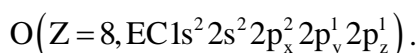


79. (1)

For isoelectronic atom and ions, higher the atomic number, smaller is the size. O^{2-} , F^- , Na^+ and Mg^{2+} all have 10 electrons.

80. (3)

Ionisation energy of Be ($Z = 4$, electronic configuration $1s^2 2s^2$) is greater than that of B ($Z = 5$, EC $1s^2 2s^2 2p^1$). IE of N ($Z = 7$, EC $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$) is greater than that of



81. (3)

82. (1) Be : $1s^2 2s^2$ has no tendency to take electron.
83. (2)
In 'a' set all have 32 electrons.
In 'c' set all have 14 electrons.
In 'd' set all have 50 electrons.
84. (2)
First IE on N-atom is actually higher than that of O-atom because of $2p_x^1 2p_y^1 2p_z^1$ half filled stable electronic configuration.
85. (3)
86. (2)
87. (1)
88. (2)
89. (4)
90. (4)
- 91 (4) NCERT XI: Pg. no. 23,24
- 92 (3) NCERT XI: Pg. no.132
- 93 (2) Wildlife sanctuaries, Botanical garden and Zoological Park help in conservation of species while other are methods of preservation or recording descriptions
- 94 (1) NCERT XI: Pg. no.30, 36,38
- 95 (2) NCERT XI: Pg. no.136
- 96 (3) Vascular sporophytes are Pteridophytes that alternates with autotrophic short lived prothallus which is gametophyte. *Adiantum* and *Dryopteris* are Pteridophytes while *Funaria* is a Bryophyte. *Ectocarpus* is brown algae and *Chara* is green algae. NCERT XI: Pg. no.33,35,38
- 97 (3) Cell wall is composed of peptidoglycan which retains the Gram stain.
- 98 (1) NCERT XI: Pg. no.132
- 99 (3) NCERT XI: Pg. no.38
- 100 (3) Dinomitosis differs from mitosis in the retention of nuclear membrane during cell division
- 101 (2) Viruses is made up of nucleic acids and proteins only and hence are referred to as nucleoprotein particles
- 102 (1) NCERT XI: Pg. no. 11
- 103 (1) NCERT XI: Pg. no.131,132
- 104 (1) Indusium is a part of sporophyte hence diploid, prothallus is gametophyte hence haploid while spore mother cells is diploid.
- 105 (3) Mesosomes are infoldings of cell membrane. Lateral mesosomes contains respiratory enzymes
- 106 (2) NCERT XI: Pg. no.30
- 107 (1) (2) Class-opsidaorae (3) Family-aceae or idea (4) Tribe-eae
- 108 (2) NCERT XI: Pg. no139
- 109 (2) NCERT XI: Pg. no.43
- 110 (1) A 23s rRNA and 5s rRNA are the components of 50s subunit of 70s RNA
- 111 (4) NCERT XI: Pg. no. 23

- 112 (3) *Adiantum* is also called as Walking fern because of it can propagate vegetatively in all directions
- 113 (4) NCERT XI: Pg. no. 5
- 114 (4) NCERT XI: Pg. no. 21,22
- 115 (1) Asexual reproduction in liverworts takes place by fragmentation or by formation of gemmae.
- 116 (2) NCERT XI: Pg. no.133
- 117 (1) Lichens can be used as bioindicator of SO₂ pollution NCERT XI: Pg.no. 27
- 118 (3) NCERT XI: Pg. no.35
- 119 (1) NCERT XI: Pg. no.132,133
- 120 (1) NCERT XI: Pg. no. 10,11
- 121 (2) NCERT XI: Pg. no.126
- 122 (3) NCERT XI: Pg. no.38
- 123 (3) NCERT XI: Pg. no.137 Only *Paramecium* and *Euglena* are eukaryotes
- 124 (3) Acellular slime moulds produce flagellated swarm cells after the germination of spores
- 125 (1) NCERT XI: Pg. no. 19
- 126 (3) 41 x 29 cm
- 127 (2) NCERT XI: Pg. no. 19
- 128 (3) NCERT XI: Pg. no.41
- 129 (2) NCERT XI: Pg. no.135
- 130 (3) NCERT XI: Pg. no.33
- 131 (4) . Sexual reproduction of *Rhizopus* involves gametangial copulation that leads to the formation of dark, thick walled resting spore called zygospore. It undergoes a period of dormancy for months.
- 132 (1) NCERT XI: Pg. no.137
- 133 (4) NCERT XI: Pg. no.137,138
- 134 (4) NCERT XI: Pg. no.30
135. (1) NCERT XI: Pg. no.19. *Rhodospirillum* is a chemosynthetic autotrophic bacterium thus does not perform oxygenic photosynthesis unlike the other three which are photoautotrophs.
- 136. (3)** Hydra is fresh water. Only obelia and Physalia exhibits metagenesis. Only corals have skeleton made of CaCO₃
- 137. (2)** P – Hydra – radial symmetry, Q – Crab – bilateral symmetry R – Adamsia – radial symmetry
- 138. (4)** Porifera are at cellular level of organization and hence lacks digestive tract, shows intracellular digestion.
- 139. (3)** Marine animals – Ophiura, Asterias, Pleurobrachia, Aurelia, Balanoglossus
- 140. (1)** Flame cells – for excretion. Ctenoplana – marine. Spongilla – fresh water sponge
- 141. (4)** Porifera – Paragastric cavity or spongocoel. Cnidarian has gastrovascular cavity
- 142. (3)** A – petromyzon and C – Salamander → Notochord replaced by vertebral column
A – Petromyzon – has unpaired fins
C – Salamander and D – frog – both are amphibians and hence exoskeleton absent
B – Scoliodon has 2 – chambered heart
- 143. (3)** Prototherian – Oviparous, Prototherian and Mesotherian – Aplacental Mammal like sloth do not have 7 cervical vertebrae

144. (4) Hippocampus – sea horse – Bony fish - Pisces
145. (4) Amphioxus belongs to cephalochordates
146. (3) Trygon – chondrichthyes, Carcharodon – Operculum absent, Scoliodon – Dog fish
147. (1) Midgut is narrower than Hindgut. Hepatic caecae – 8 blind tubes.
148. (3) Blood – liquid plasma, hence fibres absent
149. (3) Figure – Ciliated epithelium
PCT and DCT → Cuboidal epithelium
Walls and blood vessels and air sacs – squamous epithelium
Urinary bladder – transitional epithelium
150. (4) Gap junctions
151. (4) Heart has cardiac muscles
152. (1) Neurons
153. (1) Platyhelminthes – acoelomate
154. (3) Limulus – king crab
155. (4) Echinoderms are exclusively marine
156. (4) Aquatic Annelid like Nereis is dioecious
157. (2) Sea Urchin, Starfish, Feather star and Sea cucumber belongs to Echinodermata. Silverfish is an insect.
158. (4) Sense organ lateral line system is a type of pressure receptor in aquatic vertebrates
159. (3) Vertebrate exoskeleton is made of protein keratin
160. (2) Only Aves and mammals are warm blooded
161. (2) Nerve cord is dorsal and hollow in chordates
162. (4) Paired limbs and double circulation.
163. (3) Epithelium has negligible intercellular matrix
164. (1) Arelor tissue
165. (3) Monocytes are largest WBC / leucocytes
166. (4) Cockroach have mosaic vision with high sensitivity but low resolution
167. (4) 60 – 150 Malpighian tubules
168. (2) Amphibian – external fertilization
Reptilia – Dry and nonglandular skin
169. (1) Stomach – Alimentary canal mucosa
170. (3) Insecta – Respiratory organ - Trachea
171. (2) Option 2 is correct
172. (3) Circulatory system of cockroach is open type heart is 13 – chambered
173. (2) Spermathecae is bag to store sperms in female cockroach.
174. (3) Muscles have myosin, myoglobin and actin proteins
175. (3) Endothelium – squamous epithelium
176. (2) Gizzard and Mandible
177. (3) Ophiura – Calcerous endoskeleton
Wuchereria – Aschelminthes
Locusta – Agricultural pest
178. (4) Marine fishes – Hippocampus, Pristis, Exocoetus
Petromyzon is not a fish
Testudo is a reptile
Rohu is fresh water fish
179. (3) Connective tissue has nerve supply
180. (2) Node of Ranvier is feature of only medullated axon.