

**Leader COURSE**  
**PHASE : (I) NEET MT-8**  
**TARGET : PRE-MEDICAL 2023**

Test Type :**MINOR**

Test Pattern :**NEET (UG)**
**TEST DATE : 08-01-2023**

**ANSWER KEY**

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	4	1	2	3	4	4	3	3	2	3	4	1	3	1	4	3	1	3	1	2	3	2	3	1	1	1	3	1	1	3
Q.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	3	3	4	2	2	2	2	4	4	2	3	2	2	1	1	2	3	1	3	1	4	2	3	4	2	3	3	3	2	3
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
A.	3	2	3	2	1	1	2	4	2	3	1	4	1	2	3	4	4	3	1	2	3	3	2	3	3	3	3	4	2	
Q.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	2	4	4	2	4	1	4	4	1	2	3	1	2	3	2	1	2	3	3	2	2	4	2	1	3	1	3	1	2	2
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
A.	4	4	4	4	2	3	3	1	4	2	3	2	1	2	3	2	3	3	4	4	2	3	3	4	3	2	4	4	3	4
Q.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	3	1	4	2	1	3	4	2	3	2	3	3	3	1	3	3	4	2	1	1	3	1	3	4	3	3	2	4	3	1
Q.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200										
A.	3	4	3	2	2	4	1	4	4	4	3	4	3	4	2	4	2	1	4	1										

**HINT – SHEET**

**SUBJECT : PHYSICS**

**SECTION-A**

1. **Ans ( 4 )**

$$R = \sqrt{2^2 + 10^2 + 11^2} \\ = 15$$

2. **Ans ( 1 )**

$$[E] = [ML^2T^{-2}], [J] = [ML^2T^{-1}],$$

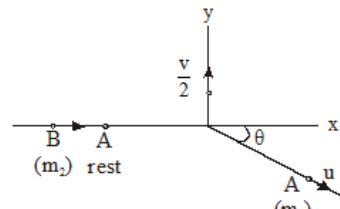
$$\text{And } [G] = [M^{-1}L^3T^{-2}]$$

$$\left[ \frac{EJ^2}{m^5G^2} \right] = \frac{[ML^2T^{-2}][ML^2T^{-1}]^2}{[M^5][M^{-1}L^3T^{-2}]^2}$$

$$= [M^0L^0T^0] = [\text{Angle}]$$

3. **Ans ( 2 )**

Applying the law of conservation of momentum we have



$$\text{in y-direction, } m_1 u \sin \theta = m_2 \frac{v}{2}$$

$$\text{In x-direction, } m_1 u \cos \theta = m_2 v$$

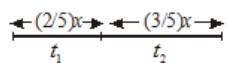
$$\therefore \tan \theta = \frac{1}{2}$$

**4. Ans (3)**

$$\text{Potential energy of spring } U = \frac{F^2}{2k}$$

$$\Rightarrow \frac{U_1}{U_2} = \frac{k_2}{k_1} = \frac{3000}{1500} = 2:1$$

[If F = constant]

**5. Ans (4)**


$$\text{Average speed} = \frac{\text{Total distance travelled}}{\text{Total time taken}}$$

$$\frac{x}{t_1 + t_2} = \frac{x}{\frac{(2/5)x}{v_1} + \frac{(3/5)x}{v_2}} = \frac{5v_1 v_2}{2v_2 + 3v_1}$$

**6. Ans (4)**

$$MK_1^2 = \frac{1}{2}MR^2 \Rightarrow K_1 = \frac{R}{\sqrt{2}}$$

$$MK_2^2 = MR^2 \Rightarrow K_2 = R \Rightarrow \frac{K_1}{K_2} = \frac{1}{\sqrt{2}}$$

**7. Ans (3)**

$$s_n = \frac{a}{2}(2n-1) \text{ and } s(n) = \frac{a}{2}n^2$$

$$\text{Hence, } \frac{s_n}{s(n)} = \frac{\frac{a}{2}(2n-1)}{\frac{a}{2}n^2} = \left[ \frac{2}{n} - \frac{1}{n^2} \right]$$

**8. Ans (3)**

By Wien's displacement law,  $\lambda_m T = \text{constant}$

$$\therefore \lambda_m T = \lambda'_m T' \text{ or } 500 \times 6000 = 400 \times T'$$

$$\text{or } T' = \frac{500 \times 6000}{400} = 7500 \text{ K}$$

**9. Ans (2)**

Distance travelled in  $n$  sec

$$= \frac{1}{2} g n^2 = h \quad \dots\dots \text{(i)}$$

Distance travelled in  $n^{\frac{1}{2}}$  sec

$$= \frac{g}{2} (2n - 1) = \frac{9h}{25} \quad \dots\dots \text{(ii)}$$

Solving (i) and (ii) we get.  $h = 122.5 \text{ m}$ .

**10. Ans (3)**

$$\tau = I\alpha = \frac{I(\omega_i - \omega_f)}{t}$$

$$= \frac{2 \times \left( 2\pi \times \frac{60}{60} - 0 \right)}{60} = \frac{4\pi}{60} = \frac{\pi}{15} \text{ N-m}$$

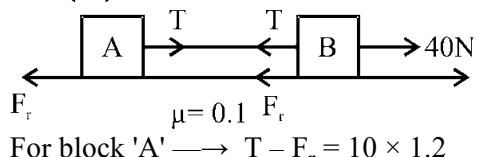
**11. Ans (4)**

$$T_2 = (m_1 + m_2) \times \frac{T_3}{m_1 + m_2 + m_3}$$

$$= \frac{(10 + 6) \times 40}{20} = 32 \text{ N}$$

**12. Ans (1)**

$$\vec{v}_{\text{res}} = \sqrt{v_p^2 + v_r^2} = \sqrt{117} \text{ km/hr}$$

**13. Ans (3)**


$$T - 10 = 12$$

$$T = 22 \text{ N}$$

$$\text{For Block 'B'} \rightarrow 40 - T - F_r = 10 \times a$$

$$40 - 22 - 10 = 10 a$$

$$a = 0.8 \text{ ms}^{-2}$$

**14. Ans (1)**

Since the time of flight depends upon the vertical component of projection velocity, rotation of earth doesn't affect the time of flight.

**15. Ans (4)**

$$\text{time} \propto x_f^2 - x_i^2$$

$$\frac{12}{t_2} = \frac{1^2 - 0^2}{2^2 - 1^2} \Rightarrow \frac{1}{3}$$

$$t_2 = 36 \text{ minute}$$

**16. Ans (3)**

$$x_{cm} = R = \frac{u^2 \sin 2\theta}{g}$$

$$\therefore x_{cm} = \frac{m_1 x_1 + m_2 x_2}{m_1 + m_2}$$

$$\therefore x_2 = 1120 \text{ m}$$

**17. Ans (1)**

Area of rectangular frame  
 $= 6 \text{ cm} \times 5 \text{ cm} = 30 \times 10^{-4} \text{ m}^2$

Perimeter of rectangular frame  
 $= 2(6+5) \times 10^{-2} = 22 \times 10^{-2}$

Now for circular frame,  
 $2\pi r = 22 \times 10^{-2}$

$$2 \times \frac{22}{7} r = 22 \times 10^{-2}$$

$$r = \frac{7}{2} \times 10^{-2} \text{ m}$$

Area of circular frame,

$$A_2 = \pi r^2 = \frac{22}{7} \times \left(\frac{7}{2} \times 10^{-2}\right)^2 = \frac{77}{2} \times 10^{-4}$$

$$\therefore W = 2T\Delta A = 2T(A_2 - A_1)$$

$$= 2 \times 36 \times 10^{-3} \left[ \frac{77}{2} \times 10^{-4} - 30 \times 10^{-4} \right] \\ = 612 \times 10^{-7} = 6.12 \times 10^{-5} \text{ J}$$

**18. Ans (3)**

Gravitational force remains constant on the falling spherical ball. It is represented by straight line P.

The viscous force  $F = 6\pi\eta rv$  increases as the velocity increases with time. Hence, it is represented by curve Q.

Net force = gravitational force — viscous force  
 As viscous force increases, net force decreases and finally becomes zero. Then the body falls with a constant terminal velocity. It is thus represented by curve R.

**19. Ans (1)**

$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$

$$\frac{F_1}{100} = \frac{8 \times 10^4}{100 \times 100}$$

$$F_1 = 800 \text{ N}$$

**20. Ans (2)**

Bernoulli's theorem for unit mass of liquid is

$$\frac{P}{\rho} + \frac{1}{2}v^2 = \text{constant}$$

As the liquid starts flowing, its pressure energy decreases

$$\begin{aligned}\frac{1}{2}v^2 &= \frac{\Delta P}{\rho} \\ \Rightarrow \frac{1}{2}v^2 &= \frac{3.5 \times 10^5 - 3 \times 10^5}{10^3} \\ \Rightarrow v^2 &= \frac{2 \times 0.5 \times 10^5}{10^3} \\ \Rightarrow v^2 &= 100 \\ \Rightarrow v &= 10 \text{ m/s}\end{aligned}$$

**21. Ans (3)**

Viscous force is given by

$$F = \eta A \frac{V}{d}$$

$$\frac{F_1}{F_2} = \frac{V_1}{V_2}$$

$$\frac{800}{2400} = \frac{2}{V_2}$$

$$V_2 = 6 \text{ cm/s}$$

**22. Ans (2)**

\* In adiabatic compression

$$Q = 0 \text{ & } TV^{\gamma-1} = \text{constant} \text{ than } V \downarrow \Rightarrow T$$

\*  $V \Rightarrow dV = \oplus \text{ve} \Rightarrow W = PdV = \oplus \text{ve}$

\* Free expansion of ideal gas is isothermal expansion process but no heat is exchanged between system and surrounding

\* Work is a path function, not a state function

**23. Ans (3)**

$$W_1 = +\text{ve}, W_2 = 0, W_3 = -\text{ve}$$

$$\text{FLOT} = Q = W + \Delta U$$

$\Delta U$  same for all processes

$$\text{So, } Q_1 > Q_2 > Q_3$$

**24. Ans (1)**

$$\rho = \frac{PM}{RT} \text{ and } \rho \propto \frac{1}{V}$$

during AB,  $\rho$  is constant and hence volume there for work done is zero.

During BC  $P \propto r$

i.e. T = constant and hence U is constant

**25. Ans (1)**

The average power per unit area that is incident perpendicular to the direction of propagation is called the intensity. Intensity of sound

$$I = \frac{P}{4\pi r^2} \Rightarrow I \propto \frac{1}{r^2} \Rightarrow \frac{I_1}{I_2} = \left(\frac{r_2}{r_1}\right)^2$$

Here  $r_1 = 2\text{m}$ ,  $r_2 = 3\text{m}$

Substituting the values, we have

$$\frac{I_1}{I_2} = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

**26. Ans (1)**

According to the Doppler's effect, whenever there is relative motion between a source of sound and listener, the apparent frequency of sound heard by the listener is different from the source. Let S be source of sound. Let v be the actual frequency of sound emitted by the source and  $\lambda$  be the actual wavelength of the sound emitted.

$$\text{If } v \text{ is velocity of sound in still air, then } \lambda = \frac{v}{V}$$

If velocity of listener is  $v_L$  and velocity of source is  $v_S$ , then apparent frequency of sound waves heard by the listener is

$$v' = \frac{v - v_L}{v - v_S} \times V$$

Here both source and listener are approaching each other. Then  $v_s$  is positive and  $v_L$  is negative.

$$\text{So, } v' = \frac{v - (-v_L)}{v - v_S} \times V = \left\{ \frac{v + v_L}{v - v_S} \right\} V$$

$$\rightarrow v' > v \text{ also, } \lambda' < \lambda$$

So, listener listen more frequency and observes less wavelength.

27. Ans (3)

$$X_1 = 12 \sin(484\pi t - 7\pi x)$$

$$= 12 \sin 2\pi \left( 242t - \frac{7x}{2} \right)$$

$\therefore$  Frequency  $n_1 = 242$  Hz

$$X_2 = 12 \sin(480\pi t - 7\pi x)$$

$$= 12 \sin 2\pi \left( 240t - \frac{7x}{2} \right)$$

$\therefore$  Frequency  $n_2 = 240$  Hz

Beat frequency  $= n_1 - n_2 = 2$

28. Ans (1)

$$\text{Particle velocity } v_p = \frac{\partial y}{\partial t} = 3 \times 50\pi \cos(\pi(50t - x))$$

$$v_{p\max} = 150\pi \text{ m/s}$$

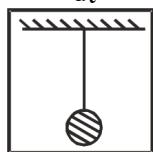
$$\text{and wave velocity } v = \frac{\omega}{k} = \frac{50\pi}{\pi} = 50$$

$$\therefore \frac{v_{p\max}}{v} = \frac{150\pi}{50} = 3\pi$$

29. Ans (1)

$$y = Kt^2$$

$$a_y = \frac{d^2y}{dt^2} = 2K = 2 \text{ m/s}^2$$



$$\text{So, } g_{\text{eff}} = g + a_y = 12 \text{ m/s}^2$$

$$T_1 = 2\pi \sqrt{\frac{\ell}{g}} = 2\pi \sqrt{\frac{\ell}{10}}$$

$$T_2 = 2\pi \sqrt{\frac{\ell}{g_{\text{eff}}}} = 2\pi \sqrt{\frac{\ell}{12}} \quad \text{So,}$$

$$\frac{T_1^2}{T_2^2} = \frac{12}{10} = \frac{6}{5}$$

30. Ans (3)

$$\frac{5v}{4\ell} = \frac{2v}{2L}$$

$$\boxed{\ell = \frac{5}{4}L}$$

31. Ans (3)

Since at highest point of graph, slope of x - t curve changes suddenly which is physically impossible.

34. Ans (2)

∴ Area under  
v-t curve = displacement  
and area under a-t  
curve = change in velocity

35. Ans (2)

Instantaneous and average velocity will be same only in uniform motion.

### SECTION-B

42. Ans (2)

$$12.5 \times 10^4 \times v = 25 \times 1000;$$

$$\therefore v = \frac{1}{5} = 0.2 \text{ ft/sec}$$

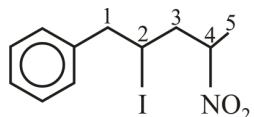
46. Ans (2)

$$N = 30 + 1(10) = 40 \text{ N}$$

### SUBJECT : CHEMISTRY

### SECTION-A

52. Ans (2)



54. Ans (4)

Octet complete

75. Ans (3)

$$\begin{aligned}\Delta E &= 9 + w \\ &= -128 + 462\end{aligned}$$

$$\Delta E = 334 \text{ J}$$

81. Ans (3)

$$v = RCZ^2 \left( \frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

$$\therefore v_H = RC \times 1 \left( \frac{1}{1} - \frac{1}{16} \right) = RC \times \frac{15}{16}$$

$$\text{and } v_{Li^{+2}} = RC \times 9 \left( \frac{1}{4} - \frac{1}{9} \right) = 9RC \times$$

$$\frac{5}{36} = \frac{5}{4}RC$$

$$\therefore \frac{v_H}{v_{Li^{+2}}} = \frac{15RC}{16} \times \frac{4}{5RC} = \frac{3}{4}$$

**SUBJECT : BIOLOGY-I**
**SECTION-A**

- 101. Ans ( 3 )**  
NCERT XIth Pg# 188

- 103. Ans ( 2 )**  
NCERT Pg.# 187, Fig. 11.8

- 104. Ans ( 3 )**  
NCERT Pg. # 191

- 106. Ans ( 1 )**  
Module No.-3, Pg. # 143

- 107. Ans ( 2 )**  
Transpiration causes water to rise in plants by pulling through xylem elements.  
Root pressure causes water to rise in plants by pushing water in xylem components. So, the rise of water in plants is done by pulling and pushing *via* transpiration and root pressure, respectively.

- 111. Ans ( 2 )**  
NCERT Pg. # 197, 198

- 114. Ans ( 1 )**  
NCERT XI Page no. # 197 (Topic = Iron)

- 122. Ans ( 4 )**  
NCERT (XIth) Pg.# 219  
Fig.#13.9

- 131. Ans ( 3 )**  
First two SLP occur in Cytosol  
NCERT PAGE: 230

**SECTION-B**

- 137. Ans ( 3 )**  
NCERT Pg. # 236, Fig. 14.6

- 140. Ans ( 4 )**  
NCERT-XI Pg. No. # 231

- 143. Ans ( 3 )**  
Module No. 3, Pg. # 234, 235, 236

**SUBJECT : BIOLOGY-II**
**SECTION-A**

- 151. Ans ( 3 )**  
NCERT XI Biology, Page # 263, 264

- 154. Ans ( 2 )**  
NCERT-XI, Pg. # 258

- 162. Ans ( 3 )**  
NCERT-XI page# 271

- 166. Ans ( 3 )**  
NCERT XI Pg # 285

- 171. Ans ( 3 )**  
NCERT XII Page # 297, 298

- 183. Ans ( 3 )**  
NCERT Page # 309

**SECTION-B**

- 197. Ans ( 2 )**  
NCERT Pg.#339

- 199. Ans ( 4 )**  
NCERT (XI) Pg. # 333



1. The magnitudes of mutually perpendicular forces  $\vec{a}$ ,  $\vec{b}$  and  $\vec{c}$  are 2, 10 and 11 respectively. Then the magnitude of its resultant is

(1) 23      (2) 121      (3) 125      (4) 15

Unique Ide...MD11PHVE02SCE-0097|64927

(2506986|64927)

2. E, m, J and G denote energy, mass, angular momentum and gravitational constant respectively. Then the dimensions of  $EJ^2/m^5G^2$  are

(1) Angle      (2) Length      (3) Mass      (4) Time

Unique Ide...MD11PHUD05SCE-0044|64927

(2014241|64927)

3. Two spheres A and B of masses  $m_1$  and  $m_2$ , respectively collide. A is at rest initially and B is moving with velocity  $v$  along x-axis. After collision B has a velocity  $\frac{v}{2}$  in a direction perpendicular to the original direction. The mass A moves after collision in the direction

(1)  $\theta = \tan^{-1} \frac{1}{2}$  to the y-axis      (2)  $\theta = \tan^{-1} \frac{1}{2}$  to the x-axis

(3) Same as that of B      (4) opposite to the of B

Unique Ide...AT12PHSP01SCM-0045|64927

(1960693|64927)

4. Two springs of spring constants 1500 N/m and 3000 N/m respectively are stretched with the same force. They will have potential energy in the ratio

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

Unique Ide...MD11PHWE06SCE-0003|64927

(1814332|64927)

5. If a car covers  $2/5^{\text{th}}$  of the total distance with  $u_1$  speed and  $3/5^{\text{th}}$  distance with  $u_2$  then average speed is

(1)  $\frac{1}{2} \sqrt{u_1 u_2}$       (2)  $\frac{u_1 + u_2}{2}$       (3)  $\frac{2u_1 u_2}{u_1 + u_2}$       (4)  $\frac{5u_1 u_2}{3u_1 + 2u_2}$

Unique Ide...MD11PHKN05SCE-0001|64927

(1677011|64927)

6. The ratio of the radii of gyration of a circular disc to that of a circular ring, each of same mass and radius around their respective axes passing through centre is :-

(1)  $\sqrt{2} : 1$       (2)  $\sqrt{2} : \sqrt{3}$       (3)  $\sqrt{3} : \sqrt{2}$       (4)  $1 : \sqrt{2}$

Unique Ide...MD11PHRT32SCE-0583|64927

(2209934|64927)

7. A car starts from rest and moves with constant acceleration. The ratio of the distance covered in the  $n^{\text{th}}$  second to that covered in  $n$  seconds is :-

(1)  $\frac{2}{n^2} - \frac{1}{n}$       (2)  $\frac{2}{n^2} + \frac{1}{n}$       (3)  $\frac{2}{n} - \frac{1}{n^2}$       (4)  $\frac{2}{n} + \frac{1}{n^2}$

Unique Ide...MD11PHKN33SCE-0290|64927 (NA)

(1125178|64927)

8. The surface temperature of the sun which has maximum energy emission at 500 nm is 6000 K. The temperature of a star which has maximum energy emission at 400 nm will be:

(1) 8500 K      (2) 4500 K      (3) 7500 K      (4) 6500 K

Unique Ide...MD11PHHT34SCE-0320|64927

(2244118|64927)

9. A particle is dropped under gravity from rest from a height  $h$  ( $g = 9.8 \text{ m/s}^2$ ) and it travels a distance  $9h/25$  in the last second, the height  $h$  is

(1) 100 m      (2) 122.5 m      (3) 145 m      (4) 167.5 m

Unique Ide...MD11PHKN06SCE-0012|64927

(1745542|64927)

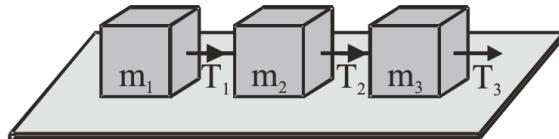
10. A wheel having moment of inertia  $2 \text{ kg-m}^2$  about its vertical axis, rotates at the rate of 60 rpm about this axis. The torque which can stop the wheel's rotation in one minute would be :-

(1)  $\frac{2\pi}{15} \text{ N-m}$       (2)  $\frac{\pi}{12} \text{ N-m}$       (3)  $\frac{\pi}{15} \text{ N-m}$       (4)  $\frac{\pi}{18} \text{ N-m}$

Unique Ide...MD11PHWE32SCE-0322|64927 (NA)

(989016|64927)

11. Three blocks of masses  $m_1$ ,  $m_2$  and  $m_3$  are connected by massless strings as shown on a frictionless table. They are pulled with a force  $T_3 = 40\text{N}$ . If  $m_1 = 10 \text{ kg}$ ,  $m_2 = 6\text{kg}$ ,  $m_3 = 4 \text{ kg}$  the tension  $T_2$  will be



(1) 20 N      (2) 40 N      (3) 10 N      (4) 32 N

Unique Ide...MD11PHNL39SCE-0054|64927 (NA)

(895599|64927)

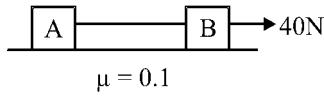
12. A river is flowing at the rate of 6 km/h. A swimmer swims across the river with a velocity of 9 km/h w.r.t. water. The resultant velocity of the man will be in (km/h):-

(1)  $\sqrt{117}$       (2)  $\sqrt{340}$       (3)  $\sqrt{17}$       (4)  $3\sqrt{40}$

Unique Ide...MD11PHBM36SCE-0153|64927

(839338|64927)

13. Two identical blocks A and B each of mass 10 kg are joined together with string as shown in figure. The coefficient of friction between each block and the surface is  $\mu = 0.1$ . The block B is pulled with a force of 40 N and the block A accelerates with  $1.2 \text{ ms}^{-2}$ . The acceleration of block B is :



(1)  $1.2 \text{ ms}^{-2}$       (2)  $1.8 \text{ ms}^{-2}$       (3)  $0.8 \text{ ms}^{-2}$       (4) none of these

Unique Ide...MD11PHNL23SCE-0037|64927 (MD12PHNL15NUM)

(274981|64927)

14. In ground to ground projectile motion under gravity, which of the following doesn't affect the time of flight ?

(1) Rotation of earth      (2) Air resistance  
(3) Curvature of earth      (4) All of these

Unique Ide...MD11PHKN36SCE-0462|64927

(2172095|64927)

15. Ice starts freezing in a lake with surface water at  $0^\circ\text{C}$  when the atmospheric temperature is  $-10^\circ\text{C}$ . If the time taken for 1 cm of ice to be formed is 12 minutes, the time taken for the thickness of the ice to change from 1 cm to 2 cm will be :-

(1) 12 minutes  
(2) less than 12 minutes  
(3) more than 12 minutes but less than 24 minutes  
(4) more than 24 minutes



Unique Ide...MD11PHHT32SCE-0173|64927 (MD11PHTP19NUM)

(927956|64927)

16. A projectile is fired at a speed of 100 m/s at an angle of  $37^\circ$  above the horizontal. At the highest point, the projectile breaks into two parts of mass ratio 1 : 3, the smaller coming to rest. Find the distance from the launching point to the point where the heavier piece lands.



(1) 1100 m (2) 1200 m (3) 1120 m

(4) 1210 m

Unique Ide...MD11PHCM05SCT-0005|64927 (NA)

(2056950|64927)

17. A soap film is formed in a rectangular wire frame of dimensions  $(6 \text{ cm} \times 5 \text{ cm})$ . This frame is now pulled to form a circular frame. If surface tension of soap solution is  $36 \times 10^{-3} \text{ N/m}$ , the work done in this process is :-

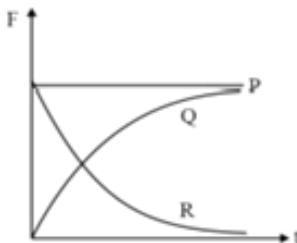
(1)  $6.12 \times 10^{-5} \text{ J}$  (2)  $3.06 \times 10^{-5} \text{ J}$  (3)  $12.2 \times 10^{-5} \text{ J}$  (4)  $1.53 \times 10^{-5} \text{ J}$ 

Unique Ide...MD11PHFM23SCE-0004|64927

(2178951|64927)

18. A spherical ball is dropped in a long column of viscous liquid. Which of the following graphs represent the variation of

1. the gravitational force with time
2. the viscous force with time
3. the net force acting on the ball with time



(1) Q,R,P (2) R,Q,P (3) P,Q,R (4) R,P,Q

Unique Ide...AT12PHFM01SCM-0028|64927

(2177972|64927)

19. How much force must be exerted on the smaller piston of hydraulic machine to lift a load of weight  $8 \times 10^4 \text{ N}$  if area of smaller piston is  $100 \text{ cm}^2$  and that of larger piston is  $1 \text{ m}^2$  ?

(1) 800N (2)  $8 \times 10^4 \text{ N}$  (3) 8N (4)  $8 \times 10^6 \text{ N}$ 

Unique Ide...MD11PHFM01SCM-0002|64927

(2506889|64927)

20. A manometer connected to a closed tap reads  $3.5 \times 10^5 \text{ N m}^{-2}$ . When the valve is opened, the reading of manometer falls to  $3.0 \times 10^5 \text{ N m}^{-2}$ , then the velocity of flow of water is

(1) 100 m/s (2) 10 m/s (3) 1 m/s (4)  $10\sqrt{10} \text{ m/s}$ 

Unique Ide...MD11PHFM22SCM-0001|64927

(2177866|64927)

21. A Newtonian fluid fills the clearance between a shaft and a sleeve. When a force of 800 N is applied to the shaft, parallel to the sleeve, the shaft attains a speed of  $2 \text{ cm s}^{-1}$ . If a force of 2.4 kN is applied instead, the shaft would move with a speed of

(1)  $2 \text{ cm s}^{-1}$  (2)  $15 \text{ cm s}^{-1}$  (3)  $6 \text{ cm s}^{-1}$  (4) none of these

Unique Ide...MD11PHFM29SCM-0001|64927

(2177822|64927)

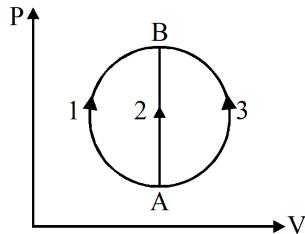
**22.** Which of the following statement is correct.

- (1) If heat is added to a system, its temperature must increase.
- (2) If positive work is done by a system in a thermodynamic process, its volume must increase.
- (3) In free expansion, heat is necessarily absorbed by the system.
- (4) In a process, the initial pressure and volume are equal to the final pressure and volume then the net work done by the system in the process must be zero.

Unique Ide... MD11PHTP90SCE-0001|64927

(2061468|64927)

**23.** A gas undergoes A to B through three different process 1, 2 and 3 as shown in figure. The heat supplied to the gas is  $Q_1$ ,  $Q_2$  and  $Q_3$  respectively, then

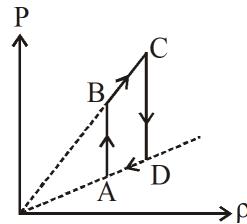


- (1)  $Q_1 = Q_2 = Q_3$
- (2)  $Q_1 < Q_2 < Q_3$
- (3)  $Q_1 > Q_2 > Q_3$
- (4)  $Q_1 = Q_3 > Q_2$

Unique Ide... MD11PHTP01SCM-0008|64927

(2771443|64927)

**24.** An ideal gas undergoes a process in which pressure and density varies as shown in the graph:



- (1) In the process BC internal energy of the gas remains constant
- (2) In the process AB work done by the gas is negative
- (3) In the process AB work done by the gas is positive
- (4) None of the above

Unique Ide... MD11PHTP01SCM-0003|64927

(2771442|64927)

**25.** A point source emits sound equally in all directions in a non-absorbing medium. Two points P and Q are at a distance of 2 m and 3 m respectively from the source. The ratio of the intensities of the waves at P and Q is

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

Unique Ide... MD11PHWM33SCE-0100|64927

(2215745|64927)

**26.** When both the listener and source are moving towards each other, then which of the following is true regarding frequency and wavelength of wave observed by the observer?

- (1) More frequency, less wavelength
- (2) More frequency, more wavelength
- (3) Less frequency, less wavelength
- (4) More frequency, constant wavelength

Unique Ide... MD11PHWM37SCE-0080|64927

(2215395|64927)

27.  $X_1 = 12 \sin(484\pi t - 7\pi x)$  and  $X_2 = 12 \sin(480\pi t - 7\pi x)$  represent the equation of two sound waves and  $x$  and  $t$  are in metre and second. Beat frequency (in Hz) produced by these two waves is

(1) 4

(2) 3

(3) 2

(4) 1

Unique Ide...MD11PHWM35SCE-0145|64927

(2215274|64927)

28. The equation of simple harmonic motion wave is given by  $y = 3 \sin \pi (50 t-x)$  where  $x$  and  $y$  are in meter and  $t$  is in sec. The ratio of maximum particle velocity to the wave velocity.

(1)  $3\pi$ (2)  $\frac{2}{3}\pi$ (3)  $2\pi$ (4)  $\frac{3\pi}{2}$ 

Unique Ide...MD11PHWM31SCE-0209|64927

(2190210|64927)

29. A simple pendulum has time period  $T_1$ . The point of suspension is now moved upward according to the relation  $y = Kt^2$ , ( $K = 1 \text{ m/s}^2$ ) where  $y$  is the vertical displacement. The time period now becomes  $T_2$ . The ratio of  $\frac{T_1^2}{T_2^2}$  is : ( $g = 10 \text{ m/s}^2$ )

(1)  $\frac{6}{5}$ (2)  $\frac{5}{6}$ 

(3) 1

(4)  $\frac{4}{5}$ 

Unique Ide...MD11PHWM35SCE-0107|64927 (NA)

(1578430|64927)

30. The second overtone of an closed organ pipe has the same frequency as the first overtone of an open pipe  $L$  metre long. The length of the closed pipe will be.

(1)  $L$ (2)  $\frac{3}{2}L$ (3)  $\frac{5}{4}L$ (4)  $\frac{7}{2}L$ 

Unique Ide...MD11PHWM15SCE-0003|64927

(2190360|64927)

31. Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R), Assertion (A):  $x-t$  graph, for a particle undergoing rectilinear motion, can be as shown in the figure.



Reason (R): Infinitesimal changes in velocity are physically possible only in infinitesimal time

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

Unique Ide...MD11PHKN10ARM-0001|64927

(2626463|64927)

32. Statement I : To unscrew a rusted nut, we need a pipe wrench with longer arm.

Statement II : Wrench with longer arm reduces the force applied on the arm.

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

Unique Ide...MD11PHRT08ARM-0001|64927

(2796474|64927)

**33.** Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R),

Assertion (A) : If net force on a system is zero, then momentum of every individual body remains constant.

Reason (R) : If momentum of a system is constant, then kinetic energy of the system may change.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A).

(2) Both (A) and (R) are true and (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

Unique Ide...MD11PHCM05ARM-0001|64927

(2796222|64927)

**34.** Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R),

Assertion (A): Area under velocity-time graph gives displacement.

Reason (R): Area under acceleration-time graph gives velocity.

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

(2) (A) is true but (R) is false

(3) (A) is false but (R) is true

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

Unique Ide...MD11PHKN12ARE-0001|64927

(2626475|64927)

**35.** Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R),

Assertion (A): The instantaneous velocity does not depend on instantaneous position vector.

Reason (R): The instantaneous velocity and average velocity of a particle are always same.

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

(2) (A) is true but (R) is false

(3) (A) is false but (R) is true

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

Unique Ide...MD11PHKN02ARE-0001|64927

(2626453|64927)

**36.** Statement I - Speed attained by a falling body in air depends upon its mass.

Statement II - Speed attained by a falling body in vacuum depends upon its mass.

(1) Both Statement I and Statement II are incorrect

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

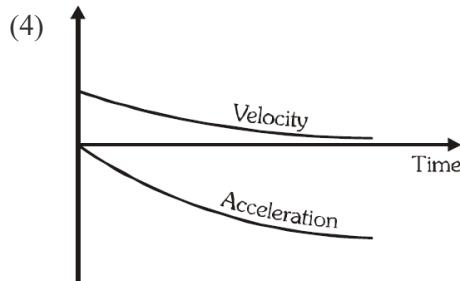
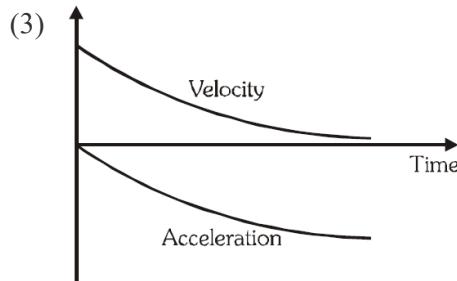
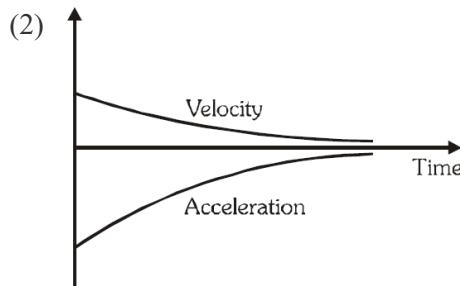
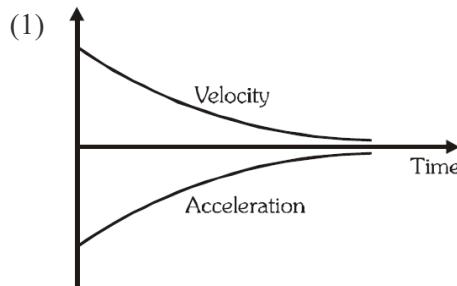
(3) Statement I is incorrect but Statement II is correct

(4) Both Statement I and Statement II are correct

Unique Ide...MD11PHKN06SCT-0006|64927

(2709568|64927)

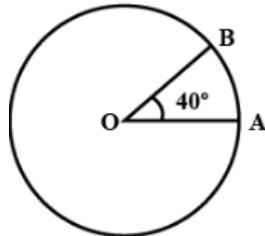
37. A new kind of braking can reduce speed but cannot stop completely. A car installed with this kind of brake is running 10 m/s when brakes are applied. As a result velocity decreases with time according to equation  $v = 10e^{-2t}$ . Which of the following figures correctly represents variation in velocity and acceleration of the car with time during braking?



Unique Ide...MD11PHKN10SCT-0003|64927

(2707262|64927)

38. A person is moving in a circle of radius  $r$  with constant speed  $v$ . The change in velocity in moving from A to B is

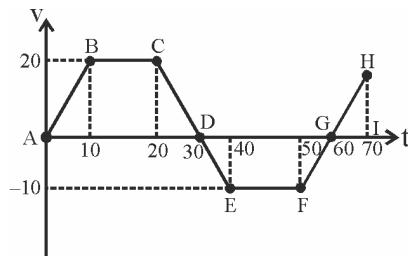


- (1)  $2 v \cos 40^\circ$       (2)  $2 v \sin 40^\circ$       (3)  $2 v \cos 20^\circ$       (4)  $2 v \sin 20^\circ$

Unique Ide...MD11PHKN01SCT-790005|64927

(2593049|64927)

39. Find the incorrect option for given v-t graph :-



- (1) In AB, DE and GH velocity and acceleration have same direction  
 (2) Total distance in ABCDEFG is 600 m  
 (3) acceleration in BC and EF is zero  
 (4) at point C velocity of particle is changing its direction

Unique Ide...MD11PHKN08SCT-0001|64927

(2034656|64927)

40. A wheel has angular acceleration of  $3.0 \text{ rad/sec}^2$  and an initial angular speed of  $2.00 \text{ rad/sec}$ . In a time of 2 sec it has rotated through an angle (In radian) of:

- (1) 6      (2) 10      (3) 12      (4) 4

Unique Ide...MD11PHRT01SCT-2275490|64927

(2752131|64927)

41. The potential energy of a particle of mass 1 kg in motion along the x-axis is given by:  $U=4(1-\cos 2x)$ , where x is in metres. The period of small oscillation (in seconds) is:-

(1)  $2\pi$ (2)  $\pi$ (3)  $\pi/2$ (4)  $\pi/3$ 

Unique Ide...MD11PHSH33SCT-0006|64927

(2135228|64927)

42. From a stationary tank of mass 125000 pound a small shell of mass 25 pound is fired with a muzzle velocity of 1000 ft/sec. The tank recoils with a velocity of

(1) 0.1 ft/sec

(2) 0.2 ft/sec

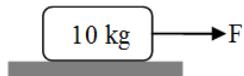
(3) 0.4 ft/sec

(4) 0.8 ft/sec

Unique Ide...MD11PHWE36SCT-0023|64927 (NA)

(785147|64927)

43. A force  $F = 2t^2$  is applied to the cart initially at rest. The speed of the cart at  $t = 5$  sec is :-



(1) 10 m/s

(2) 8.33 m/s

(3) 2 m/s

(4) Zero

Unique Ide...MD11PHNL02SCT-0006|64927 (MD11PHNL02NUT)

(1750251|64927)

44. A clock which keeps correct time at  $20^\circ\text{C}$  is subjected to  $40^\circ\text{C}$ . If coefficient of linear expansion of the pendulum is  $12 \times 10^{-6}$  per  $^\circ\text{C}$ , how much will it gain or lose in time ?

(1) 10.3 seconds/day

(2) 20.6 seconds/day

(3) 5 seconds/day

(4) 20 minutes/day

Unique Ide...MD11PHSH37SCT-0016|64927

(2135330|64927)

45. Find the speed of sound in a mixture of 1 mole of Helium and 1 mole of Hydrogen at  $127^\circ\text{C}$  :-

(1) 1290 m/sec

(2) 460 m/sec

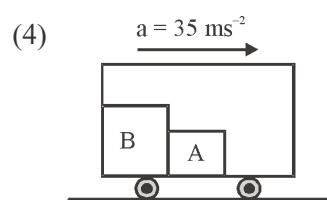
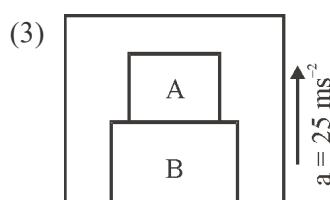
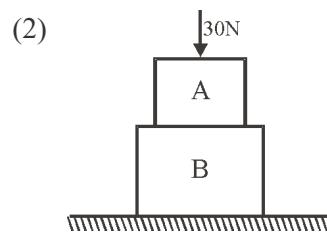
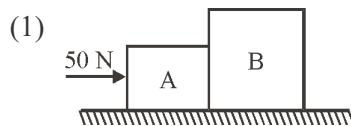
(3) 620 m/sec

(4) 910 m/sec

Unique Ide...MD11PHWM33SCT-0012|64927

(2179807|64927)

46. In which of the following cases the contact force between A & B is maximum? ( $m_A = m_B = 1\text{kg}$ )



Unique Ide...MD11PHNL14SCT-0002|64927

(640053|64927)

47. If an unknown quantity  $\phi = \frac{ma}{\alpha} \log \left( 1 + \frac{\alpha l}{ma} \right)$  were  $m$  = mass  $a$  = acceleration  $l$  = length, the dimension of  $f$  are :-

(1)  $\text{MLT}^{-2}$ (2)  $\text{MT}^{-2}$ (3)  $\text{M}^0\text{LT}^0$ (4)  $\text{ML}^{-3}$ 

Unique Ide...MD11PHUD32SCT-0062|64927

(2198976|64927)

48. A particle completes 3 revolutions per second on circular path of radius 8 cm. Find the values of angular velocity and centripetal acceleration of the particle:

(1)  $6\pi \frac{\text{rad}}{\text{s}}; 288\pi^2 \frac{\text{cm}}{\text{s}^2}$

(2)  $\pi \frac{\text{rad}}{\text{s}}; 275\pi^2 \frac{\text{cm}}{\text{s}^2}$

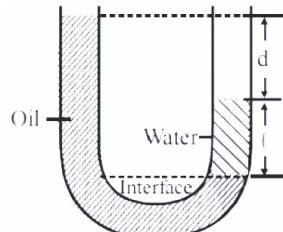
(3)  $6\pi \frac{\text{rad}}{\text{s}}; 288 \frac{\text{cm}}{\text{s}^2}$

(4) None

Unique Ide...MD11PHCR30SCT-0003|64927

(2692287|64927)

49. A U-tube contains two liquids in static equilibrium. Water of density  $1000 \text{ kg/m}^3$  is in the right arm. Oil of unknown density is in the left arm as shown in figure. Measurement give  $l = 135 \text{ mm}$  and  $d = 12.5 \text{ mm}$ . The density of oil is nearly :-



(1)  $1092 \text{ kg/m}^3$

(2)  $961 \text{ kg/m}^3$

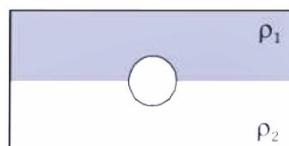
(3)  $915 \text{ kg/m}^3$

(4)  $843 \text{ kg/m}^3$

Unique Ide...AT12PHFM01SCT-0055|64927

(2739820|64927)

50. A solid uniform ball having volume  $V$  and density  $\rho$  floats at the interface of two immiscible liquids as shown in figure.



The densities of the upper and the lower liquids are  $\rho_1$  and  $\rho_2$  respectively, such that  $\rho_1 < \rho < \rho_2$ . What fraction of the volume of the ball will be in the upper liquid :

(1)  $\frac{\rho - \rho_2}{\rho_1 - \rho_2}$

(2)  $\frac{\rho_1}{\rho_1 - \rho_2}$

(3)  $\frac{\rho_1 - \rho}{\rho_1 - \rho_2}$

(4)  $\frac{\rho_1 - \rho_2}{\rho_2}$

Unique Ide...AT12PHFM01SCT-0056|64927

(2739806|64927)

1. The correct decreasing order of priority for the functional groups of organic compounds in the IUPAC system of nomenclature is

(1)  $-\text{SO}_3\text{H}, -\text{COOH}, -\text{CONH}_2, -\text{CHO}$

(2)  $-\text{CHO}, -\text{COOH}, -\text{SO}_3\text{H}, -\text{CONH}_2$

(3)  $-\text{CONH}_2, -\text{CHO}, -\text{SO}_3\text{H}, -\text{COOH}$

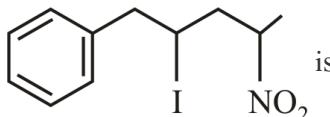
(4)  $-\text{COOH}, -\text{SO}_3\text{H}, -\text{CONH}_2, -\text{CHO}$

Unique Ide...MD12OCNC08THE-0016|64927

(2556810|64927)

2.

IUPAC name of the compound



is

(1) 2-Iodo-4-nitro-pentylbenzene

(2) 2-Iodo-4-nitro-1-phenylpentane

(3) 2-Nitro-4-iodo-5-phenylpentane

(4) 2-Iodo-4-nitropentyl benzene

Unique Ide...MD12OCNC08THM-0003|64927

(2396222|64927)



3. 3 – Propylcyclopropene is :-



Unique Ide...MD12OCNC13THM-0016|64927 (MD12OCNC09THM)

(1979653|64927)

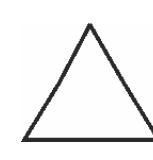
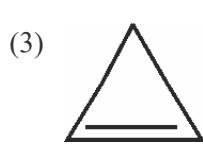
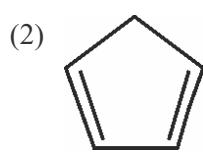
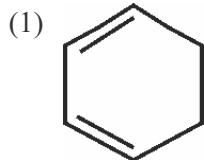
4. Most stable resonating structure is :



Unique Ide...MD12OCGC22THE-0002|64927

(2309892|64927)

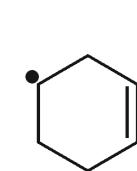
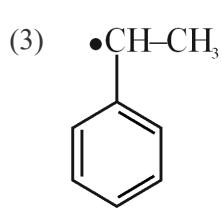
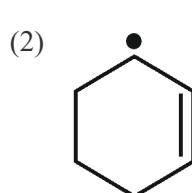
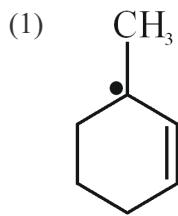
5. Which compound have most acidic H-atom ?



Unique Ide...MD12OCGC16SCE-0008|64927

(2756134|64927)

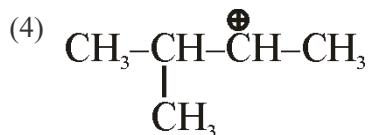
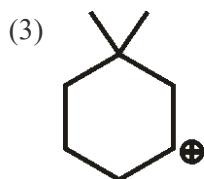
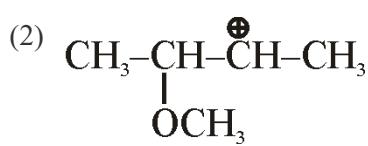
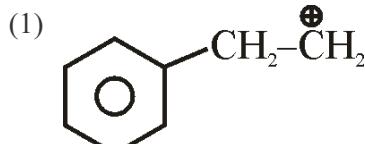
6. Most stable free radical is ?



Unique Ide...MD12OCGC13SCE-0002|64927

(2439458|64927)

7. Rearrangement is not possible in

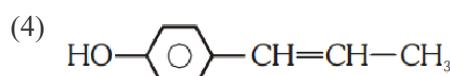
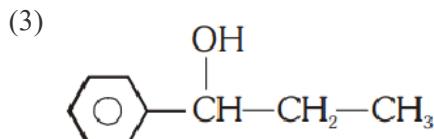
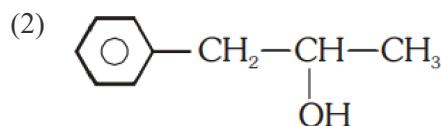
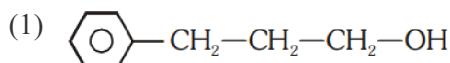
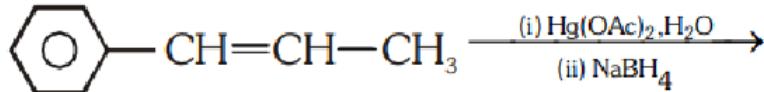


Unique Ide...MD12OCHC20SCM-0006|64927 (MD12OCHC20RXE)

(1171423|64927)



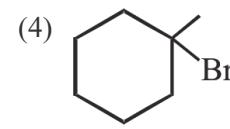
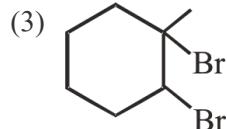
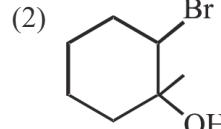
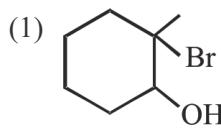
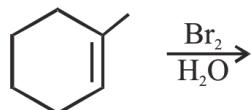
8. The major product of the following reaction is



Unique Ide...MD12OCCC39SCM-0084|64927 (MD12OCHC28RXM)

(1958905|64927)

9. What is major product of following reaction?



Unique Ide...MD12OCHC36SCE-0337|64927 (MD12OCHC27RXE)

(910455|64927)

10. Which one of the following is a correct set with respect to molecule, hybridisation and shape ?

(1)  $\text{BeCl}_2$   $\text{sp}^2$ , linear

(2)  $\text{BeCl}_2$   $\text{sp}^2$ , triangular planar

(3)  $\text{BCl}_3$   $\text{sp}^2$ , triangular planar

(4)  $\text{BCl}_3$   $\text{sp}^3$ , triangular

Unique Ide...MD12ICCB32SCE-0160|64927 (MD12ICCB06THE)

(222740|64927)

11. In which of the following conversion, bond order is increased ?

(1)  $\text{N}_2 \rightarrow \text{N}_2^+$

(2)  $\text{O}_2 \rightarrow \text{O}_2^-$

(3)  $\text{C}_2 \rightarrow \text{C}_2^{-2}$

(4)  $\text{H}_2 \rightarrow \text{H}_2^+$

Unique Ide...MD12ICCB44SCE-0295|64927 (MD12ICCB18THE)

(1230512|64927)

12. Which of the following isotope of hydrogen known as heavy hydrogen ?

(1) Protium

(2) Deuterium

(3) Tritium

(4) All of the above

Unique Ide...MD12ICHCO1THM-0003|64927

(2489459|64927)

13. In which of the following compounds B – F bond length is shortest ?

(1)  $\text{BF}_4^-$

(2)  $\text{BF}_3 \rightarrow \text{NH}_3$

(3)  $\text{BF}_3$

(4)  $\text{BF}_3 \leftarrow \text{N}(\text{CH}_3)_3$

Unique Ide...MD12ICPB01SCM-2357116|64927

(2748939|64927)

14. Most covalent compound is :

(1)  $\text{LiCl}$

(2)  $\text{BeCl}_2$

(3)  $\text{NaCl}$

(4)  $\text{KCl}$

Unique Ide...MD12ICSB35SCE-0141|64927 (MD12ICSB07RBM)

(985363|64927)

15. Following configuration of atom

$$(P) = [\text{Ne}]3s^23p^3 \quad (Q) = [\text{Ar}]3d^{10}4s^24p^3$$

$$(R) = [\text{He}]2s^22p^5 \quad (S) = [\text{Ne}]3s^1$$

Incorrect statement is :

(1) E.A. : Q > R (EA = Electron affinity)

(2) E.N. : R > P (EN = Electronegative)

(3) I.P. : P > S (IP = Ionisation potential)

(4) Size : S > R

Unique Ide...MD12ICPT37SCM-0002|64927 (MD12ICPT15RBM)

(631818|64927)

16. The decreasing order of second ionisation potential of K, Ca and Ba is :-

(1) K > Ca > Ba

(2) Ca > Ba > K

(3) Ba > K > Ca

(4) K > Ba > Ca

Unique Ide...MD12ICPT33SCE-0151|64927 (MD12ICPT12RBM)

(341315|64927)

17. The correct statement for the reaction



(1) Hybridisation state is changed

(2) Bond angle increases

(3) NH<sub>3</sub> act as a Lewis acid

(4) Regular geometry is changed

Unique Ide...MD12ICCB08SCM-0007|64927

(2735566|64927)

18. The type of hybridisation in B<sub>2</sub>H<sub>6</sub> is :-

(1) sp

(2) sp<sup>2</sup>

(3) dsp<sup>2</sup>

(4) sp<sup>3</sup>

Unique Ide...MD12ICPB38SCE-0016|64927 (MD12ICPB02THE)

(599397|64927)

19. The covalent bond formed is strongest by which overlapping ? (Shell number are same)

(1) s-p

(2) p-p (co-axial)

(3) s-s

(4) p-p (sidewise)

Unique Ide...MD12ICCB32SCM-0131|64927 (MD12ICCB04THE)

(734949|64927)

20. How many moles of Ba<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> will contain 0.25 mole of oxygen atoms?

(1)  $2.5 \times 10^{-2}$

(2) 0.02

(3)  $3.125 \times 10^{-2}$

(4)  $1.25 \times 10^{-2}$

Unique Ide...MD12PCMC02SCE-0087|64927

(2638441|64927)

21. Match the following physical quantities with units :

Physical Quantity		Unit	
(i)	Molarity	(a)	Mol
(ii)	Mole fraction	(b)	Unit less
(iii)	Mole	(c)	mol L <sup>-1</sup>
(iv)	Molality	(d)	mol kg <sup>-1</sup>

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

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

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

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

Unique Ide...MD12PCMC21THE-0007|64927

(2791271|64927)

22. Which of the following set is wrong ?

(1) n = 2, ℓ = 1, m = 1, s = +  $\frac{1}{2}$

(2) n = 2, ℓ = 0, m = 0, s = +  $\frac{1}{2}$

(3) n = 3, ℓ = 2, m = 1, s = +  $\frac{1}{2}$

(4) n = 2, ℓ = 1, m = 2, s = -  $\frac{1}{2}$

Unique Ide...MD12PCAS39SCE-0196|64927 (MD12PCAS18THE)

(846891|64927)

23. Match the type of series given in Column-I with the wave length range given Column-II

	<b>Column-I</b>		<b>Column-II</b>
(i)	Lyman	(a)	Visible
(ii)	Paschen	(b)	Ultraviolet
(iii)	Balmer	(c)	Infrared

(1) (i) – (b), (ii) – (c), (iii) – (a)

(2) (i) – (a), (ii) – (b), (iii) – (c)

(3) (i) – (c), (ii) – (b), (iii) – (a)

(4) (i) – (a), (ii) – (c), (iii) – (b)

Unique Ide...MD12PCAS13SCE-0024|64927

(2632321|64927)

24. At relatively high pressure, Vanderwalls equation reduces to :-

(1)  $PV = RT$ (2)  $PV = RT + Pb$ (3)  $PV = RT + \frac{a}{v}$ (4)  $PV = RT - \frac{a}{v^2}$ 

Unique Ide...MD12PCRG31SCE-0018|64927 (MD12PCBG06THE)

(956998|64927)

25. The work done to contract a gas in a cylinder is 462 joule. 128 joule energy is evolved in the process. What will be the internal energy change in the process ?

(1) +590 joule

(2) –334 joule

(3) +334 joule

(4) –590 joule



Unique Ide...MD12PCTH37SCE-0087|64927 (MD12PCTD06NUE)

(910287|64927)

26. A piston filled with 0.04 mol of an ideal gas expands reversibly from 50.0 mL to 375mL at a constant temperature of 37.0°C. As it does so, it absorbs 208 J of heat. The values of q and w for the process will be :-

 $(R = 8.314 \text{ J/mol K}) (\ln 7.5 = 2.01)$ (1)  $q = -208 \text{ J}, w = -208 \text{ J}$ (2)  $q = -208 \text{ J}, w = +208 \text{ J}$ (3)  $q = +208 \text{ J}, w = +208 \text{ J}$ (4)  $q = +208 \text{ J}, w = -208 \text{ J}$ 

Unique Ide...MD12PCTH37SCM-0072|64927 (MD12PCTD07NUM)

(1329775|64927)

27. Reaction  $A_{(g)} + B_{(g)} \rightleftharpoons C_{(g)}$  will be shifted in forward reaction if :-

(1) Add He gas at constant volume

(2) Add Ne gas at constant pressure

(3) Add catalyst

(4) Decreased volume

Unique Ide...MD12PCCE31SCM-0180|64927 (MD12PCCE14NUM)

(852048|64927)

28. A certain buffer solution contains equal concentration of  $X^-$  and HX. The  $K_a$  for HX is  $10^{-10}$ . The pH of the buffer is :

(1) 4

(2) 7

(3) 10

(4) 14

Unique Ide...MD12PCIE41SCM-0040|64927 (MD12PCIE28NUM)

(267466|64927)

29. The solubility of  $\text{BaSO}_4$  in water is  $2.33 \times 10^{-3} \text{ g L}^{-1}$ . Its solubility product will be -

(Molecular weight of  $\text{BaSO}_4$  = 233)(1)  $10^{-10}$ (2)  $10^{-5}$ (3)  $10^{-15}$ (4)  $10^{-20}$ 

Unique Ide...MD12PCIE17NUM-0024|64927

(2631091|64927)

30. If  $[\text{OH}^-] = 5.0 \times 10^{-5} \text{ M}$  then pH will be :-

(1)  $5 - \log 5$ (2)  $9 + \log 5$ (3)  $\log 5 - 5$ (4)  $\log 5 - 9$

Unique Ide...MD12PCIE31SCM-0424|64927 (MD12PCIE09NUM)

(867791|64927)

31. The ratio of the frequency corresponding to the third line in Lyman series of hydrogen atomic spectrum to that of the first line in Balmer series of  $\text{Li}^{2+}$  spectrum is :-

(1)  $\frac{4}{5}$

(2)  $\frac{5}{4}$

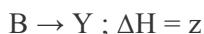
(3)  $\frac{3}{4}$

(4) None of these

Unique Ide...MD12PCAS37SCM-0187|64927 (MD12PCAS14NUM)

(842767|64927)

32. An imaginary process  $X \rightarrow 2Y$  takes place in three step :-

Then Heat of reaction  $X \rightarrow 2Y$  will be :

(1)  $x + y + z$

(2)  $x + 2y + z$

(3)  $x + 2y + 2z$

(4)  $x + y + 2z$

Unique Ide...MD12PCTC15NUM-0023|64927

(2796446|64927)

33. Which of the following overlap can not form  $\pi$  bond.

(1) p-p

(2) S-p

(3) d-d

(4) d-p



Unique Ide...MD12ICCB32SCE-01000|64927 (MD12ICCB04THE)

(1928023|64927)

34. Which one of the following is a good conductor of electricity –

(1) Amorphous carbon

(2) Diamond

(3) Graphite

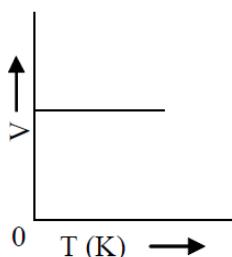
(4) Silicon

Unique Ide...MD12ICPB11TQE-0001|64927

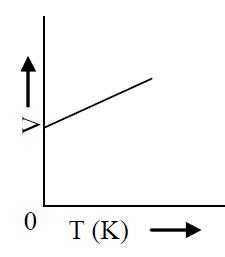
(2397132|64927)

35. The CORRECT representation of Charles's law is

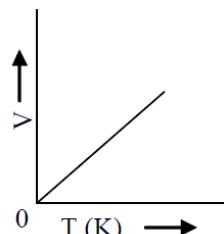
(1)



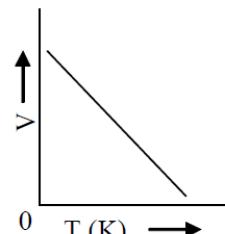
(2)



(3)



(4)



Unique Ide...MD12PCBG01SCE-0002|64927

(1691174|64927)

36. IUPAC name of picric acid is :

(1) 2,4,6-trinitrobenzen

(2) 2,4,6-trinitrobenzoic acid

(3) 2,4,6-trinitrophenol

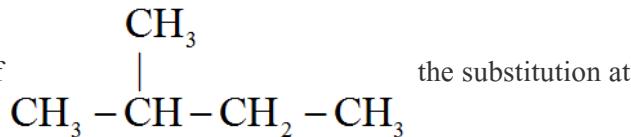
(4) None of these

Unique Ide...MD12OCNC14SCM-0016|64927

(2594523|64927)

37.

In the bromination of

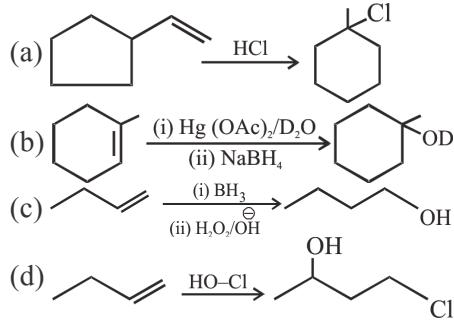


- (1) 1° carbon would be fastest
- (2) 2° carbon would be fastest
- (3) 3° carbon would be fastest
- (4) 1°, 2°, 3° carbon atoms all will occur at the same rate.

Unique Ide...MD12OCHC08SCE-0016|64927

(1845368|64927)

38. Which of following is/are correct?



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

Unique Ide...MD12OCHC36SCE-0050|64927 (MD12OCHC29RHM)

(796982|64927)

39. Which of the following compound does not show Friedal craft's Reaction.



Unique Ide...MD12OCAH37SCM-0098|64927 (MD12OCAH06RXE)

(1526888|64927)

40. Which of the following is aromatic compound?



Unique Ide...MD12OCGC15THM-0010|64927 (MD12OCGC15RBE)

(317757|64927)

41. In superoxides, oxygen is present in which form:-

- (1)  $\text{O}_2^{-2}$
- (2)  $\text{O}_2^{-1}$
- (3)  $\text{O}_3^{-2}$
- (4)  $\text{O}_2^{+2}$

Unique Ide...MD12ICSB33SCE-0018|64927 (MD12ICSB02RBM)

(558483|64927)

42. Correct order of acidic strength is :

- (1)  $\text{H}_2\text{SO}_4 > \text{H}_2\text{SO}_3$
- (2)  $\text{SO}_3 > \text{SO}_2$
- (3)  $\text{HNO}_3 > \text{HNO}_2$
- (4) All are correct

Unique Ide...MD12ICPT21THM-0021|64927

(2489791|64927)

43. The 'Bent' molecular geometry can be obtained from which of the following electron geometry :-

- (1)  $\text{sp}^3\text{d}$ ,  $\text{sp}^2$ ,  $\text{sp}^3$
- (2)  $\text{sp}^3$ ,  $\text{sp}^2$ ,  $\text{sp}^3\text{d}^2$
- (3)  $\text{sp}$ ,  $\text{sp}^2$ ,  $\text{sp}^3$
- (4)  $\text{sp}^2$ ,  $\text{sp}^3$  only

Unique Ide...MD12ICCB32SCE-0344|64927 (MD12ICCB06THE)

(568543|64927)

**44.** The electronic Geometry of  $\text{XeO}_2\text{F}_2$  is :-



Unique Ide... MD12ICCB32SCM-1123|64927 (MD12ICCB06THM)

(998262|64927)

45. If angular momentum of electron in a shell is  $\frac{2h}{\pi}$  then in which shell electron will be present

- (1) first shell                  (2) second shell                  (3) third shell                  (4) fourth shell

Unique Ide...MD12PCAS08SCM-0008|64927

(2599003|64927)

**46.** Match the columns

Column-I		Column-II	
A	Boyle's law	p	$V \propto n$ at constant T and P
B	Charle's law	q	$P_{\text{total}} = P_1 + P_2 + P_3 + \dots$ at constant T, V
C	Dalton's law	r	$\frac{PV}{T} = \text{Constant}$
D	Avogadro law	s	$V \propto T$ at constant n and P
		t	$P \propto \frac{1}{V}$ at constant n and T



Unique Ide... MD12PCIG31SCM-0067|64927 (MD12PCBG01REM)

(1204720|64927)

47. If  $K_p$  for a reaction,

$A(g) + 2B(g) \rightleftharpoons 3C(g) + D(g)$  is 0.05 atm at 1000 K, its  $K_c$  in terms of R will be :



Unique Id: MD12PCCE06NUE-0029|64927

(2608509|64927)

**48.** Which of the following will make a buffer solution:

- (i)  $\text{CH}_3\text{COONa}$  (2 mole) +  $\text{HCl}$  (1 mole)  
(ii)  $\text{CH}_3\text{COOH}$  (2 mole) +  $\text{NaOH}$  (1 mole)  
(iii)  $\text{CH}_3\text{COOH}$  (1 mole) +  $\text{CH}_3\text{COONa}$  (1 mole)

Unique Ide MD12PCIE27SCE-0003|64927

(2623757|64927)

49. Out of the following, the intensive property is



Unique Id: MD12PCTD03THE-0005|64927 (MD12PCTD03THE)

(634711|64927)

**50.** Following adiabatic conditions, work done on the system is equivalent to 500 cal. What are the values of q, w and  $\Delta E$  ?

- (1)  $q = -500$ ,  $\Delta E = 0$ ,  $w = +500$
- (2)  $q = 0$ ,  $w = -500$ ,  $\Delta E = +500$
- (3)  $q = 0$ ,  $w = +500$ ,  $\Delta E = -500$
- (4)  $q = 0$ ,  $w = \Delta E = 500$

Unique Ide...MD12PCTD09NUM-0001|64927 (MD12PCTD09NUM)

(227854|64927)

**1.** Ascent of xylem sap depends on which of the following properties of water ?

- (1) Cohesion and Adhesion only
- (2) Surface tension & Adhesion only
- (3) Adhesion, Cohesion and surface tension
- (4) Cohesion and surface tension only

Unique Ide...MD12BOPS33SCE-0718|64927 (MD11BOTP18TQE)

(856925|64927)

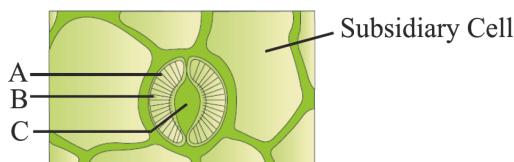
**2.** Water enters into the root hair from the soil in its normal condition because the osmotic pressure of the soil solution :-

- (1) Remains lesser than that of root hair sap
- (2) Remains equal to that of root hair sap
- (3) Remains higher than that of root hair sap
- (4) And that of root hair sap remains zero

Unique Ide...MD11BOTP32SCE-0213|64927 (MD11BOTP08QDM)

(828699|64927)

**3.** Given below is the diagram of stomatal apparatus. In which of the following all of the three parts labelled as A, B and C are correctly matched ?

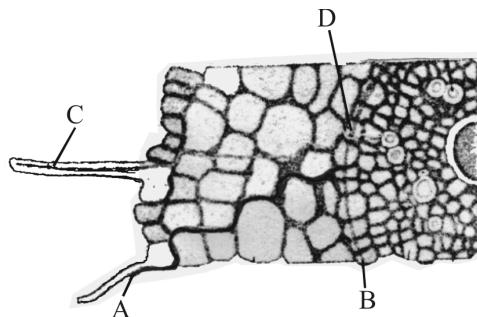


- (1) A-Microfibril, B-Stomatal aperture, C-Guard cell
- (2) A-Microfibril, B-Guard cell, C-Stomatal aperture
- (3) A-Stomatal aperture, B-Guard cell, C-Microfibril
- (4) A-Guard cell, B-Stomatal aperture, C-Microfibril

Unique Ide...MD11BOTP33SCM-0039|64927 (MD11BOTP16DBM)

(574066|64927)

4. Given below is the diagrammatic sketch of certain phenomenon. Identify A, B, C, D and select the right about them :-



	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	Symplastic path	Endodermis	Apoplastic path	Casparian strip
(2)	Apoplastic path	Casparian strip	Symplastic path	Pericycle
(3)	Apoplastic path	Casparian strip	Symplastic path	Endodermis
(4)	Symplastic path	Casparian strip	Apoplastic path	Endodermis

Unique Ide... MD11BOTP19MST-0001|64927 (MD11BOTP19MST)

(230484|64927)



Unique Id: MD11BOTP31SCE-0240|64927 (MD11BOTP13NBE)

(947618|64927)

- 6** Water potential is maximum in case of :-

- (1) Pure water      (2) 2% glucose      (3) 10% glucose      (4) 10% NaCl

Unique ID: MD12BOTP32SCE-0106|64927 (MD11BOTP13CQE)

(228543|64927)

7. Transpiration and root pressure cause water to rise in plants by:



Unique Ide... MD11BOTP13SCM-0004|64927

(2189313|64927)

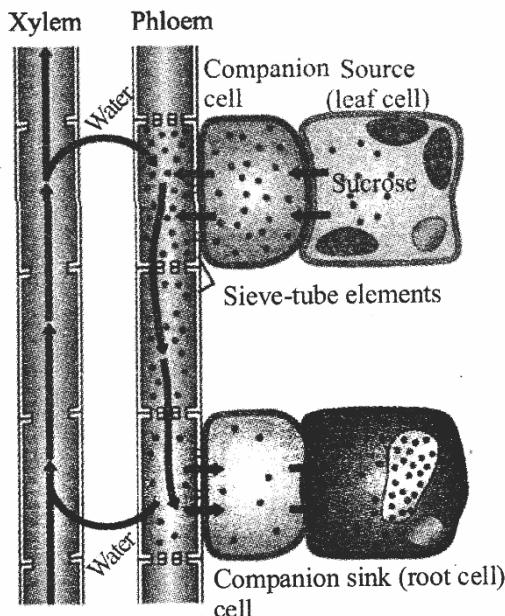
8. Which of the following is an example of imbibition?



Unique Ide... MD11BOTP15SCE-0003|64927

(2783500|64927)

9. Based on Munch's pressure-flow hypothesis shown in the given figure which of the following conditions would increase the rate of translocation?



- (1) An increase in the humidity in the outside air.
- (2) A decrease in phloem unloading at the sink.
- (3) An increase in sucrose production at the source.
- (4) A decrease in photosynthesis.

Unique Ide...MD11BOTP34SCM-0166|64927

(2176084|64927)

10. Read the following statements.

I	<i>Hydrilla</i> leaf cells show the cytoplasmic streaming.
II	Mycorrhiza has fungal and algal association with roots, which is found in the roots of <i>Cycas</i> and <i>Pinus</i> .
III	Innermost layer of cortex of root and stem is the layer called endodermis.

- (1) Only one statement is true
- (2) Two statements are true
- (3) Three statements are true
- (4) None of the statements is true.

Unique Ide...MD11BOTP33SCT-0014|64927

(2189413|64927)

11. Match the column-I and column-II and choose the correct combination :-

	Column-I		Column-II
(a)	Sulphur	(1)	Chlorophyll
(b)	Zinc	(2)	Nitrogenase
(c)	Magnesium	(3)	Methionine
(d)	Molybdenum	(4)	Auxin

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

Unique Ide...MD11BOMN06MSE-0001|64927 (NA)

(859756|64927)

**12.** Which of the following statement(s) is/are correct:-

- (i) Conversion of organic nitrogen to ammonia by soil microbes is called ammonification
  - (ii) Ammonia is first oxidised to nitrite by the bacteria Nitrosomonas and Nitrococcus
  - (iii) The nitrite is further oxidised to nitrate with the help of the bacterium Thiobacillus
  - (iv) In leaves, nitrate is reduced to form ammonia that finally forms the -NH<sub>2</sub> group of amino acids
  - (v) Nitrosomonas, Nitrococcus and Nitrobacter are Chemoautotrophs
- |                         |                               |
|-------------------------|-------------------------------|
| (1) (i), (ii) and (iii) | (2) (ii), (iii), (iv) and (v) |
| (3) (i), (iii) and (v)  | (4) (i), (ii), (iv) and (v)   |

Unique Ide...MD11BOMN35SCM-0094|64927 (MD11BOMN30TQT)

(425316|64927)

**13.** Glutamate dehydrogenase is an important enzyme involved in :-

- |                       |                             |
|-----------------------|-----------------------------|
| (1) Krebs cycle       | (2) amino acid biosynthesis |
| (3) nitrogen fixation | (4) nitrate reduction       |

Unique Ide...MD11BOMN30CQE-0001|64927 (MD11BOMN30CQE)

(608228|64927)

**14.** Which of the following micronutrients is an important constituent of proteins involved in the transfer of electrons and is required in larger amount in comparison to other micronutrients ?

- |          |                |               |          |
|----------|----------------|---------------|----------|
| (1) Iron | (2) Molybdenum | (3) Manganese | (4) Zinc |
|----------|----------------|---------------|----------|

Unique Ide...MD12BOMN31SCM-0016|64927 (MD11BOMN06TQM)

(535056|64927)

**15.** In biological nitrogen fixation, the ammonia synthesis by nitrogenase enzyme requires a very high input of energy and that is :

- |  |  |
|--|--|
| (1) 16 ATP for each NH <sub>3</sub> produced | (2) 32 ATP for each NH <sub>3</sub> produced |
| (3) 8 ATP for each NH <sub>3</sub> produced  | (4) 4 ATP for each NH <sub>3</sub> produced  |

Unique Ide...MD12BOMN35SCE-0296|64927 (MD11BOMN16NBM)

(915986|64927)

**16.** Match the following columns :-

	Column-I		Column-II
(A)	Opening of stomata	(i)	Zn
(B)	Activator of catalase	(ii)	B
(C)	Pollen germination	(iii)	K
(D)	Auxin synthesis	(iv)	Fe

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

Unique Ide...MD12BOMN31SCM-0040|64927 (MD11BOMN06MSM)

(957619|64927)

**17.** The deficiency symptoms tend to appear first in the .....(a)..... tissues whenever the elements are relatively immobile like .....(b).....

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| (1) a – younger; b – N, K, S and Mg | (2) a – older; b – N, K, S and Mg |
| (3) a – younger; b – Ca             | (4) a – older; b – Ca             |

Unique Ide...MD11BOMN31SCM-0144|64927 (MD11BOMN07FSE)

(673287|64927)



**18. Assertion :-**The element is said to be deficient when present below the critical concentration.

**Reason :-** The concentration of essential element below which plant growth is retarded is termed as critical concentration.

(1) A

(2) B

(3) C

(4) D

Unique Ide...MD11BOMN07CQT-0001|64927 (MD11BOMN07CQT)

(888915|64927)

**19.** By the reaction of  $\alpha$ -ketoglutaric acid with ammonia, through which of the process glutamic acid is formed ?

(1) oxidative amination

(2) reductive amination

(3) ammonification

(4) transamination

Unique Ide...MD11BOMN35SCM-0151|64927 (MD11BOMN22TQE)

(717159|64927)

**20.** What will happen if nitrogen deficiency in soil?

(1) Rate of food conduction increase

(2) Older leaves become yellow

(3) Increases Amino acid synthesis

(4) New leaves becomes chlrotic

Unique Ide...MD11BOMN31SCE-0459|64927

(2118904|64927)

**21.** Assume a thylakoid is somehow punctured so that the interior of the thylakoid is no longer separated from the stroma. This damage will have the most direct effect on which of the following processes ?

(1) The splitting of water

(2) The absorption of light energy by chlorophyll

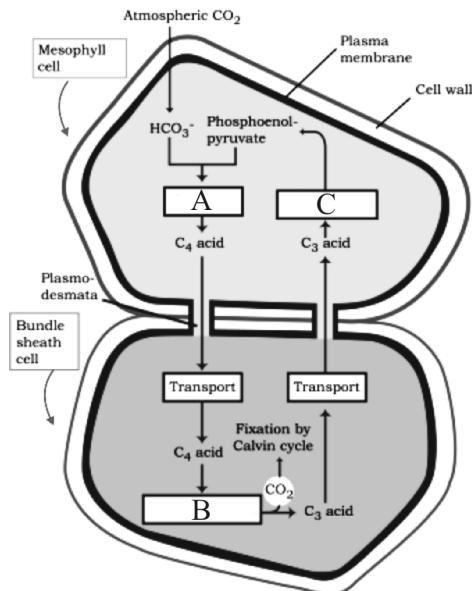
(3) The flow of electrons from photosystem II to photosystem I

(4) The synthesis of ATP

Unique Ide...MD11BOPS33SCM-0223|64927 (MD11BOPS11CQM)

(1940487|64927)

22. Study the pathway given below C<sub>4</sub> cycle diagram :



In which of the following options correct words for all the three blanks A, B and c are indicated?

	(A)	(B)	(C)
(1)	Carboxylation	Decarboxylation	Reduction
(2)	Decarboxylation	Reduction	Regeneration
(3)	Fixation	Transamination	Regeneration
(4)	Fixation	Decarboxylation	Regeneration

Unique Ide...MD11BOPS15SCM-0013|64927

(2795969|64927)

23. In Calvin cycle, which stage needs ATP :-

- (1) Carboxylation only
- (2) Only regeneration
- (3) Both carboxylation and reduction
- (4) Both reduction and regeneration

Unique Ide...MD11BOPS37SCE-0035|64927 (MD11BOPS14TQE)

(419398|64927)

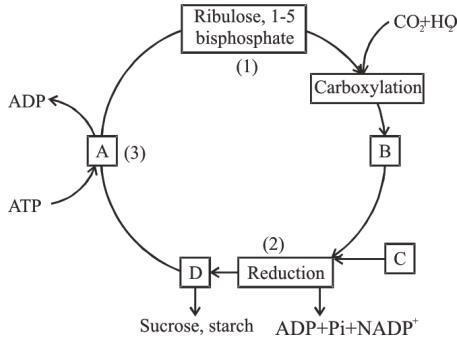
24. During photosynthetic chemiosmosis process hydrogen ions are accumulated in :-

- (1) Stroma
- (2) Matrix
- (3) Intermembrane space
- (4) Lumen

Unique Ide...MD12BOPS11TQE-0007|64927 (MD11BOPS12TQE)

(789070|64927)

25. Identify A, B, C and D in the Calvin cycle given below :-



- (1) A = regeneration of PEP, B = 3PGA, C = ADP,  
D = triosephosphate
- (2) A = regeneration, B = 3PGA, C = ATP + NADPH+H<sup>+</sup>,  
D = 3PGAL
- (3) A = OAA, B = PEP, C = ATP +NADPH+H<sup>+</sup>,  
D = Triose phosphate
- (4) A = regeneration, B = ATP, C = NADP<sup>+</sup>, D = 3PGAL

Unique Ide...MD11BOPS14DBT-0001|64927 (MD12BOPS14DBT)

(960952|64927)

26. In Z-scheme, Z shape is formed when

- (1) Carrier are placed uphill.
- (2) Carrier are placed downhill.
- (3) Carries are placed in sequence on a redox potential scale.
- (4) Light is more than 680 nm.

Unique Ide...MD11BOPS33SCM-0224|64927 (MD11BOPS09TQE)

(1940639|64927)

27. Select the incorrect statement w.r.t. photosystem II

- (1) It occurs on the inner surface of thylakoid
- (2) It is involved only in non-cyclic photophosphorylation
- (3) It is not associated with splitting of water
- (4) The reaction centre has absorption maxima at 680 nm

Unique Ide...MD11BOPS09CQM-0005|64927

(2692580|64927)

28. Read the following statement ?

- (I) Photorespiration is favoured by high O<sub>2</sub>, low CO<sub>2</sub>, rise in temperature and high light intensity.
  - (II) Chloroplast of cells of bundle sheath of C<sub>4</sub> plants, which are grana less and have RUBISCO but no PEPCase.
  - (III) Chloroplasts of mesophyll cells of C<sub>4</sub> plant are granales, have PEPCase but no RUBISCO.
  - (IV) Maize and *Sorghum* are C<sub>4</sub> plants.
- Choose the correct option :-

- |                            |                          |
|----------------------------|--------------------------|
| (1) All are correct        | (2) I and IV are correct |
| (3) II and III are correct | (4) Only IV is correct   |

Unique Ide...MD11BOPS18TQT-0001|64927

(419395|64927)



29. As compare to a C<sub>3</sub> plant how many additional molecules of ATP are needed for net production of one molecule of hexose sugar by C<sub>4</sub> plant ?



Unique Ide...MD11BOPS37SCE-0235|64927

(2232267|64927)

30.

Read the following statements w.r.t, light reaction :

- (i) PS-I, H-carrier and P<sub>700</sub> are related to cyclic electron transport chain
  - (ii) Formation of NADPH + H<sup>+</sup> is related with the formation of proton gradient
  - (iii) Movement of electrons in electron transport chain is coupled to the pumping of protons into the thylakoid lumen
  - (iv) H-carrier is responsible for the creation of proton gradient across thylakoid membrane
  - (v) The F<sub>0</sub> unit of ATP synthase is associated with the breakdown of proton gradient

How many of the above statements are correct ?

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

Unique Ide... MD11BOPS02TQE-0035|64927

(2750550|64927)

31. Which of the following statement is correctly represented?

- (1) First oxidation and first decarboxylation of glucose occurs in cytosol
  - (2) The second oxidation reaction takes place in Krebs cycle
  - (3) First two SLP reactions occur in cytosol
  - (4) Two oxidative decarboxylation reactions takes place in citric acid cycle

Unique Ide... MD11BOCR07TQM-0002|64927

(2693532|64927)

32. In which of the following substrate level phosphorylation does not occur :

- (1) 1,3-biphosphoglyceric acid → 3-phosphoglyceric acid
  - (2) Glucose 6-Phosphate → Fructose 6-Phosphate
  - (3) Succinyl Co A → Succinic acid
  - (4) Phosphoenol pyruvic acid → Pyruvic acid

Unique Ide...MD12BOCR33SCM-0082|64927

(287710|64927)

33. When a molecule of pyruvic acid is subjected to anaerobic oxidation and forms lactic acid, there is



Unique Ide... MD11BOCR35SCM-0054|64927

(2081447|64927)

34. Which one of the following enzyme is required during reduction of FAD in aerobic respiration?



Unique Ide... MD11BOCR38SCM-0083|64927

(1155650|64927)

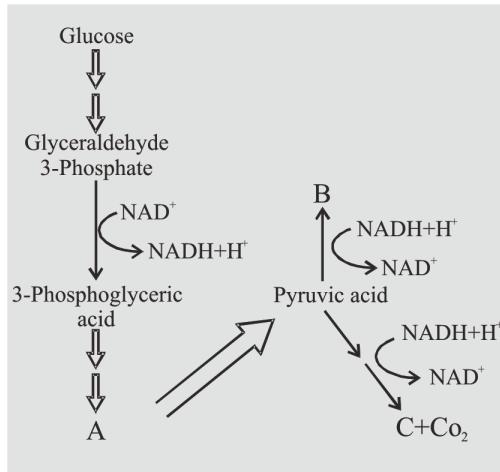
35. Single turn of citric acid cycle yields :-

- (1) 1 FADH<sub>2</sub>, 2 NADH, 1 GTP      (2) 1 FADH<sub>2</sub>, 3 NADH, 3 GTP  
 (3) 1 FADH<sub>2</sub>, 3 NADH, 1 GTP      (4) 3 FADH<sub>2</sub>, 1 NADH, 1 GTP

Unique Ide... MD11BOCR33SCM-0125|64927    (MD11BOCR07TQM)

(659221|64927)

36. Given below is the general representation of pathways of anaerobic respiration in which you have to identify the compounds at A, B, and C.

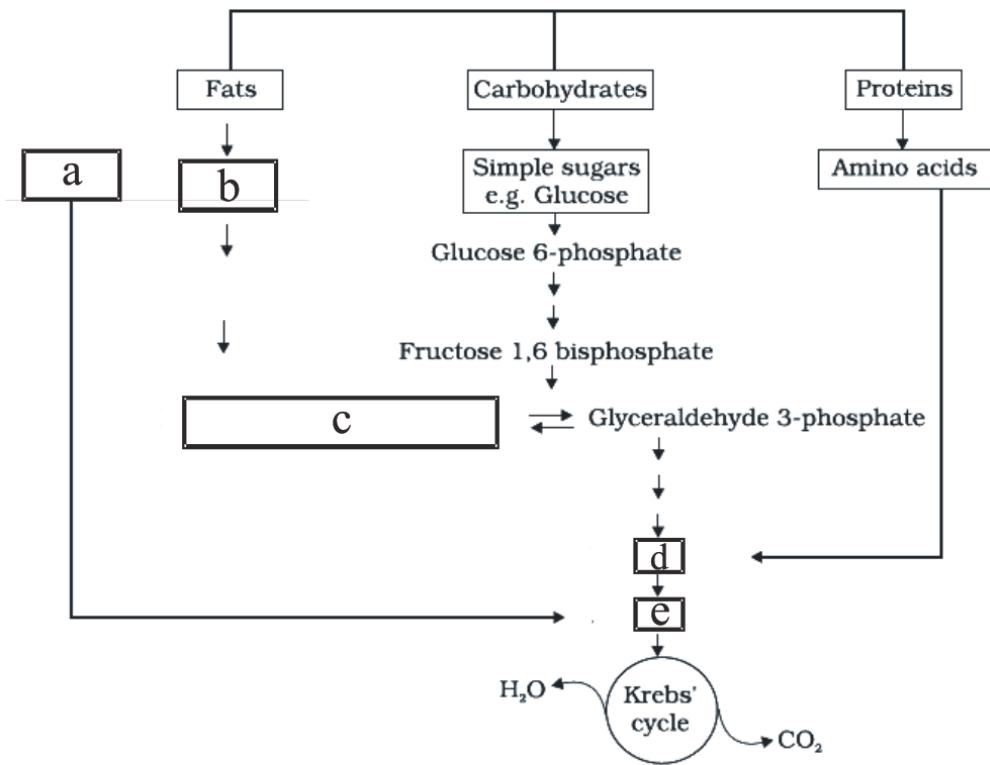


	A	B	C
(1)	PEP	CO <sub>2</sub>	Ethanol
(2)	PEP	Lactic acid	Ethanol
(3)	1, 3-Bis PGA	Lactic acid	Acetyl CoA
(4)	1, 3-Bis PGA	Acetyl CoA	Lactic acid

Unique Ide... MD11BOCR16SCM-0004|64927

(1947442|64927)

37. Recognise the figure and find out the correct matching :-



- (1) c—DHAP, d—acetyl CoA, e—pyruvic acid, b—fatty acid, a—glycerol
- (2) d—DHAP, e—acetyl CoA, c—pyruvic acid, a—fatty acid, b—glycerol
- (3) c—DHAP, e—acetyl CoA, d—pyruvic acid, a—fatty acid, b—glycerol
- (4) c—DHAP, d—acetyl CoA, e—pyruvic acid, a—fatty acid, b—glycerol

Unique Ide...MD11BOCR36SCM-0016|64927 (MD11BOCR12DBM)

(680479|64927)

38. The correct sequence of use of respiratory substrates in cellular respiration is :-

- (1) Carbohydrate, Protein, Fat
- (2) Fat, Protein, Carbohydrate
- (3) Carbohydrate, Fat, Protein
- (4) Protein, Fat, Carbohydrate

Unique Ide...MD11BOCR03SCE-0004|64927

(1934290|64927)

39. Alcoholic beverages such as wine and beer are produced by fermentation. However, brandy and whisky which contain higher alcohol contents, are produced by fermentation followed by distillation. This is because :

- (1) Distillation is cheaper
- (2) Distillation improves quality
- (3) Distillation prolongs storage period
- (4) Fermentation does not occur when alcohol content exceeds 13%

Unique Ide...MD11BOCR17CQT-0001|64927

(970190|64927)

**40.** Crucial event of aerobic respiration :-

- (1) The complete oxidation of pyruvate by step wise removal of all the hydrogen atoms
- (2) 3 molecule of  $\text{CO}_2$  released out
- (3) electron removed as part of the hydrogen atoms do not pass to molecular  $\text{O}_2$  but ATP synthesis take place
- (4) Option (1) and (2) both

Unique Ide...MD12BOCR06CQE-0002|64927 (MD11BOCR08CQT)

(977076|64927)

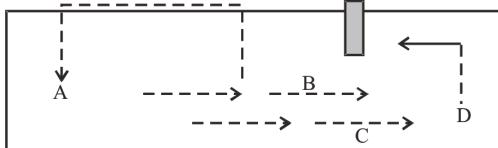
**41.** Match the following with respect to discovery of plant growth regulators :-

A	Canary grass	i	Ethylene
B	Bakane of rice	ii	Auxin
C	Tobacco stem callus	iii	GA
D	Ripened orange	iv	Cytokinins

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

Unique Ide...MD11BOPG32SCM-0263|64927

(2229036|64927)

**42.**

Choose the correct option for A, B, C and D in given diagram :-

- (1) A - mature cell, B- differentiation, C-maturation, D-meristematic cell
- (2) A - meristematic cell, B-maturation C-differentiation, D-mature cell
- (3) A-meristematic cell, B-differentiation, C-maturation, D-mature cell
- (4) A-meristematic cell, B-differentiation, C-maturation, D-meristematic cell

Unique Ide...MD11BOPG09SCE-0001|64927

(1932369|64927)

**43.** Match List-I with List-II and select correct answer:-

List-I		List-II	
(A)	IAA	I	Richmond Lang effect
(B)	GA <sub>1</sub>	II	Climactic Respiration
(C)	Zeatin	III	Induces bud and seed dormancy
(D)	ABA	IV	Prevention of abscission
(E)	C <sub>2</sub> H <sub>4</sub>	V	Bolting effect

	A	B	C	D	E
1	IV	V	III	I	II
2	IV	V	I	II	III
3	IV	V	I	III	II
4	IV	I	V	III	II



Unique Ide... MD11BOPG18MST-0001|64927 (MD11BOPG18MST)

(929444|64927)

**44.** The stimulus of vernalisation is perceived by :



Unique Ide... MD11BOPG33SCE-0046|64927 (MD11BOPG20CQE)

(682467|64927)

**45.** Which of the following is not correct for ethylene?

- (1) Promotes horizontal growth in seedlings
  - (2) Synchronize fruit set in pineapple
  - (3) Not help to increase absorption surface of root
  - (4) Break seed and bud dormancy

Unique Ide... MD11BOPG31SCM-0138|64927 (MD11BOPG16|CM)

(929190|64927)

46. The spring variety are normally planted in the A and come to B and produce grain before the end of the growing season. Find out correct match with respect to A and B respectively.

	A	B
(1)	Spring	Autumn
(2)	Spring	Flower
(3)	Flower	Spring
(4)	Autumn	Flower

Unique Ide... **MD11BOPG33SCM-0072|64927** (***MD11BOPG20MSM***)

(2070156|64927)

47. Which of the following events in plants is / are affected by interaction of more than one PGR?



Unique Ide... MD11BOPG32SCT-0029 | 64927 (MD11BOPG18CQT)

(632621|64927)

**48.** One set of the plant was grown at 12 hrs. day and 12 hrs. night period cycles and it flowered while in the other set, night phase was interrupted by flash of light and it did not produce flower. Under which one of the following categories will you place this plant?

- (1) Long day
- (2) Darkness neutral
- (3) Day neutral
- (4) Short day

Unique Ide...MD11BOPG33SCE-0043|64927 (MD11BOPG20CQE)

(673272|64927)

**49.** Which of the following activities do not involve the role of GA ?

- (1) Seed germination
- (2) Maliting
- (3) Root growth
- (4) Flowering in LDPs

Unique Ide...MD11BOPG18SCM-0007|64927

(2554872|64927)

**50.** Which of the following are correctly matched :

- (i) Arithmetic Growth – Lag Phase
- (ii) Geometric Growth – Sigmoid Curve
- (iii) Arithmetic Growth – Root Elongation
- (iv) Geometric Growth – Growth of micro-organism

- (1) (ii) & (iv)
- (2) (ii) & (iii)
- (3) (ii) only
- (4) All except (i)

Unique Ide...MD11BOPG31SCM-0118|64927

(2215256|64927)

**1.** Choose that which of following digestive reaction is incorrect :-

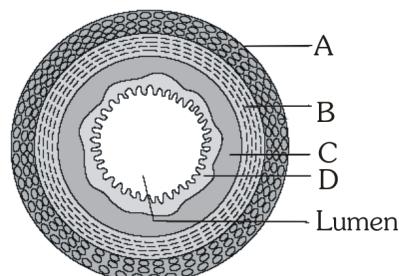
- A. Starch  $\xrightarrow[\text{pH=6.8}]{\text{Pancreatic amylase}}$  maltose
- B. Lipid (non-emulsified)  $\xrightarrow{\text{Pancreatic lipase}}$  fatty acid + monoglyceride
- C. Trypsinogen  $\xrightarrow{\text{Enterokinase}}$  trypsin
- D. Lactose  $\xrightarrow{\text{Lactase}}$  Glucose + Galactose

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

Unique Ide...MD12ZODS32SCM-0444|64927 (MD11ZODS14ICM)

(854391|64927)

**2.** The below diagram represents the TS of gut. Identify A, B, C and D :-



- (1) A - Serosa; B - Muscularis; C - Submucosa; D - Mucosa
- (2) A - Muscularis; B - Serosa; C - Submucosa; D - Mucosa
- (3) A - Serosa; B - Muscularis; C - Mucosa; D - Submucosa
- (4) A - Serosa; B - Submucosa; C - Muscularis; D - Mucosa

Unique Ide...MD11ZODS31SCE-0776|64927 (MD11ZODS08DBE)

(1053237|64927)

3. Match the enzymes with their respective substrate and choose the right one among options given:

	<b>Column-I</b>		<b>Column-II</b>
(A)	Lipase	(i)	Dipeptides
(B)	Nuclease	(ii)	Fats
(C)	Carboxypeptidase	(iii)	Nucleic acids
(D)	Dipeptidases	(iv)	Proteins, peptones and proteoses.

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

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

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

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

Unique Ide...MD11ZODS18TQT-0001|64927

(2659824|64927)

4. Select the incorrect statements :-

(a) An adult human has 32 temporary teeth.

(b) Dental formula of human is  $\frac{2123}{2123}$ .

(c) Hard chewing surface of the teeth is made up of dentine

(1) a, b

(2) a, c

(3) a, b & c

(4) b only

Unique Ide...MD12ZODS31SCM-0523|64927

(MD11ZODS03ICM)

(996840|64927)

5. Bile released into duodenum contains ?

(1) Bile salts, cholesterol, phospholipids

(2) Bile pigment, enzymes, cholesterol

(3) Bile salt, Bile pigment, Insulin

(4) Phospholipids, Arginase, Bile salts

Unique Ide...MD11ZODS32SCM-0367|64927

(MD11ZODS11TQM)

(1174673|64927)

6. The submucosal layer is made up of :-

(1) Thin mesothelium with some connective tissue

(2) Smooth muscle with some connective tissue

(3) Loose connective tissue containing nerves, blood and lymph vessels.

(4) Both (1) and (2)

Unique Ide...MD12ZODS31SCM-0060|64927

(MD11ZODS08TQE)

(915583|64927)

7. The absorption of glycerol fatty acids and monoglycerides takes place by the

(1) colon

(2) wall of stomach

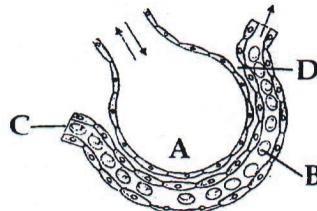
(3) capillaries with in the villi

(4) lymph vessels within the villi

Unique Ide...MD11ZODS17SCT-0002|64927

(2778458|64927)

8. The figure given below shows a small part of human lung where exchange of gases takes place. In which one of the options given below, the one part A, B, C or D is correctly identified along with its function :-



- (1) C : arterial capillary - Passes oxygen to tissues
- (2) A : alveolar cavity - Main site of exchange of respiratory gases.
- (3) D : capillary wall - Exchange of O<sub>2</sub> and CO<sub>2</sub> takes place here
- (4) B : red blood cell - transport of CO<sub>2</sub> mainly

Unique Ide...MD11ZORS31SCE-0304|64927 (MD11ZORS04DBE)

(1089767|64927)

9. People living at sea level have around 5 million RBC per cubic millimeter of their blood whereas those living at an altitude of 5400 metres have around 8 million. This is because at high altitude :-

- (1) People eat more nutritive food, therefore more RBCs are formed
- (2) People get pollution-free air to breathe and more oxygen is available
- (3) Atmospheric O<sub>2</sub> level is less and hence more RBCs are needed to transport the required amount of O<sub>2</sub> to survive
- (4) There is more UV radiation which enhances RBC production



Unique Ide...MD11ZORS35SCE-0029|64927 (MD11ZORS15CQT)

(787866|64927)

10. Match the column.

	<b>Column-I</b>		<b>Column-II</b>
(a)	Expiratory Reserve Volume	(i)	2100-2300 ml
(b)	Functional Residual Capacity	(ii)	500 ml
(c)	Inspiratory Capacity	(iii)	1000-1100 ml
(d)	Tidal Volume	(iv)	3000-3500 ml

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

Unique Ide...MD11ZORS08MSE-0003|64927

(2715489|64927)

11. Oxyhaemoglobin dissociation curve shifts to the left when :-

- (1) CO<sub>2</sub> concentration increase
- (2) Temperature increase
- (3) CO<sub>2</sub> concentration decrease
- (4) pH decrease

Unique Ide...MD12ZORS31SCM-0086|64927 (MD12ZORS12CQM)

(523659|64927)

**12.** The volume of thoracic cavity will not increase in which condition ?

- |   |   |
|---|---|
| (1) Contraction of diaphragm                    | (2) Contraction of external intercostal muscles |
| (3) Contraction of internal intercostal muscles | (4) Flattening of diaphragm                     |

Unique Ide...MD11ZORS32SCM-0048|64927 (MD11ZORS06TQE)

(427241|64927)

**13.** What type of dimensional changes occurs to the thorax when you inhale and what muscles are responsible ?

- |   |   |
|---|---|
| (1) Dorsoventral axis → EICM<br>Anterioposterior axis → IICM      | (2) Dorsoventral axis → diaphragm<br>Anterioposterior axis → EICM |
| (3) Dorsoventral axis → EICM<br>Anterioposterior axis → Diaphragm | (4) Dorsoventral axis → diaphragm<br>Anterioposterior axis → IICM |

Unique Ide...MD11ZORS32SCM-0175|64927 (MD11ZORS06TQE)

(1215633|64927)

**14.** Chemosensitive area is situated adjacent to the rhythm centre which is highly sensitive to :-

- |                                       |  |
|---------------------------------------|--|
| (1) CO <sub>2</sub> and hydrogen ions | (2) CO <sub>2</sub> and O <sub>2</sub> |
| (3) Sodium ions and potassium ions    | (4) Chloride ions                      |

Unique Ide...MD12ZORS34SCE-0141|64927 (MD11ZORS15CQE)

(643224|64927)

**15.** Which of the following statement is false ?

- |   |
|---|
| (1) Blood from the right side of the heart is carried to the lungs by the pulmonary artery. |
| (2) Coronary artery carries oxygenated blood to heart.                                      |
| (3) Heart beat rate is accelerated by Ach and parasympathetic nerves.                       |
| (4) During the ventricular systole, both atria receive the blood.                           |

Unique Ide...MD11ZOCS34SCM-0354|64927 (MD11ZOCS13CQM)

(1991846|64927)

**16.** (a) SAN is responsible for initiating and maintaining the rhythmic contractile activity of heart.

- |   |
|---|
| (b) Body has ability to alter the stroke volume as well as heart rate and thereby the cardiac output. |
| (c) Cardiac output of an athlete will be much lower than that of an ordinary man.                     |
| (d) Normal activities of the heart are regulated intrinsically.                                       |

Mark the correct sequence of true and false

- |          |          |          |          |
|----------|----------|----------|----------|
| (1) TFTT | (2) FTTF | (3) TTFT | (4) TFTF |
|----------|----------|----------|----------|

Unique Ide...MD12ZOCS33SCT-0009|64927 (MD11ZOCS13ICT)

(363545|64927)

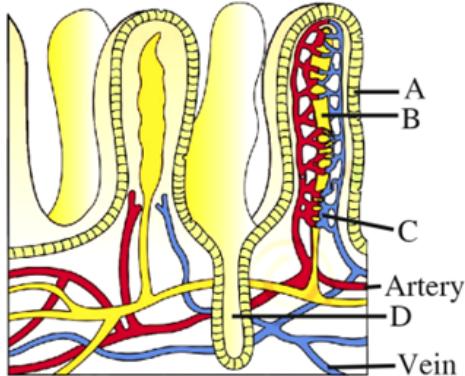
**17.** A portal system is that in which :-

- |   |
|---|
| (1) A vein begins from an organ and ends in heart   |
| (2) An artery breaks up in an organ & restarts by the union of its capillaries                              |
| (3) The blood from gut is brought in to kidneys before it is poured in to heart                             |
| (4) A vein breaks up in an organ into capillaries & restarts by their union as a new vein in the same organ |

Unique Ide...MD12ZOCS37SCM-0116|64927 (MD11ZOCS19TQE)

(1337523|64927)

18. The below diagram represents a section of small intestinal mucosa showing villi. Identify A, B, C and D :-

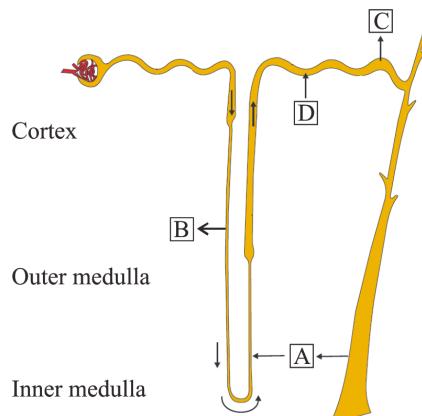


- (1) A-Lacteal, B-Villi, C-Capillaries, D-Crypts
- (2) A-Villi, B-Lacteal, C-Capillaries, D-Crypts
- (3) A-Villi , B-Lacteal , C-Crypts, D-Capillaries
- (4) A-Crypts, B-Lacteal, C-Capillaries, D-Villi

Unique Ide...MD11ZOCs06CQE-0007|64927

(2738511|64927)

19. Given below the diagram of nephron which shows reabsorption and secretion of substances. Identify the substances A, B, C and D in diagram and select the correct option which includes correctly reabsorbed and secreted substances ?



	A	B	C	D
1	Urea	Water	$\text{HCO}_3^-$	$\text{K}^+$
2	NaCl	Water	$\text{K}^+$	$\text{HCO}_3^-$
3	Water	NaCl	Urea	$\text{K}^+$
4	$\text{HCO}_3^-$	$\text{K}^+$	Water	Urea



Unique Ide...MD11ZOEE01DBM-0004|64927 (MD11ZOEE01DBM)

(985037|64927)

20. Which one of the following statements is correct with respect to kidney function regulation ?

- (1) When someone drinks lot of water, ADH release is suppressed.
- (2) Exposure to cold temperature stimulates ADH release.
- (3) An increase in glomerular blood flow stimulates formation of Angiotensin II.
- (4) During summer when body loses lot of water by evaporation, the release of ADH is suppressed.

Unique Ide...MD12ZOEE35SCM-0093|64927 (MD11ZOEE11CQM)

(893148|64927)

**21.** The outline of principal event of urination is given below :-

- (i) Stretch receptors on the wall of urinary bladder send signal to the CNS
- (ii) The bladder fills with urine and becomes distended
- (iii) Micturition
- (iv) CNS passes on motor messages to initiate the contraction smooth muscles of bladder and simultaneous relaxation of urethral Sphincter

The correct order of steps for urination is :-

- |                       |                       |
|-----------------------|-----------------------|
| (1) i → ii → iii → iv | (2) iv → iii → ii → i |
| (3) ii → i → iv → iii | (4) iii → ii → i → iv |

Unique Ide...MD12ZOEE36SCT-0002|64927 (MD11ZOEE13FAM)

(544526|64927)

**22.** A person who is on a long hunger strike and is surviving only on water, will have :-

- |                                   |                               |
|-----------------------------------|-------------------------------|
| (1) Less urea in his urine        | (2) More sodium in his urine  |
| (3) Less amino acids in his urine | (4) More glucose in his blood |

Unique Ide...MD11ZOEE36SCM-0013|64927 (MD11ZOEE13CQE)

(1127894|64927)

**23.** Correct match list-1 with list-2

- | List-1                             | List-2                                  |
|------------------------------------|---|
| (A) Glycosuria                     | (i) Inflammation of glomeruli of kidney |
| (B) Ketonuria                      | (ii) Presence of glucose in urine       |
| (C) Glomerulonephritis             | (iii) Excess of urea in blood           |
| (D) Uremia                         | (iv) Presence of ketone bodies of urine |
| (1) A-(i), B-(ii), C-(iii), D-(iv) | (2) A-(ii), B-(iv), C-(iii), D-(i)      |
| (3) A-(ii), B-(iv), C-(i), D-(iii) | (4) A-(i), B-(ii), C-(iv), D-(iii)      |

Unique Ide...MD12ZOEE38SCM-0064|64927 (MD11ZOEE16MSM)

(1139222|64927)

**24.** Deamination is the first step in urea formation. It means the

- (1) Reduction of ammonia
- (2) Oxidation of ammonia
- (3) Addition of amino group to a non-amino organic molecule
- (4) Removal of amino group from an amino acid

Unique Ide...MD11ZOEE34SCE-0074|64927

(2100677|64927)

**25.** Read the following points :-

- (i) Decreases GFR
- (ii) Increases B.P.
- (iii) Decreases blood volume
- (iv) Increases aldosterone secretion
- (v) Vasodilator
- (vi) Increases  $\text{Na}^+$  excretion

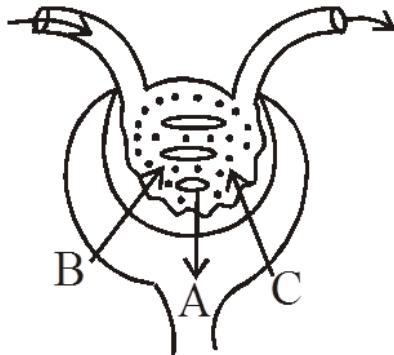
How many points are correct about ANF activity ?

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

Unique Ide...MD12ZOEE35SCT-0009|64927 (MD11ZOEE12CQT)

(932170|64927)

26. Given below the figure represents to ultrafiltration in nephron. Here three pressure shown by arrows A, B & C working and to make the net filtration pressure (NFP) in healthy person during normal condition what is the net filtration pressure ?



Option

- (1)  $NFP = A + B + C$       (2)  $NFP = B - (A + C)$   
 (3)  $NFP = A - (B + C)$       (4)  $NFP = C - (A + B)$

Unique Ide...MD11ZOE09SCE-0042|64927

(2757779|64927)

27. Formation of concentrated (hyperosmotic) urine in vertebrates generally depends on

- (1) length of the proximal convoluted tubule      (2) length of Henle's loop  
 (3) area of Bowman's capsule epithelium      (4) capillary network forming glomerulus

Unique Ide...MD11ZOE10CQE-0005|64927

(2251175|64927)

28. Read the following statements and find out the incorrect statement.

- a. During urine formation, the tubular cells secrete substances like  $H^+$ ,  $K^+$  and  $HCO_3^-$  into the filtrate.  
 b. As glomerular filtrate move down in descending limb of HL it gets concentrated and as concentrated filtrate pass upward in ascending limb of HL it gets diluted.  
 c. Conditional reabsorption of  $Na^+$  and water takes place in PCT.  
 d. Reabsorption in ascending limb of HL is minimum.

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

Unique Ide...MD11ZOE33SCE-0132|64927

(2146580|64927)

29. Select the correct statement with respect to locomotion in humans:

- (1) The joint between adjacent vertebrae is a fibrous joint  
 (2) A decreased level of progesterone causes osteoporosis in old people  
 (3) Accumulation of uric acid crystals in joints causes their inflammation  
 (4) The vertebral column has 10 thoracic vertebrae

Unique Ide...MD11ZOSM36SCM-0024|64927 (MD11ZOSM19TQM)

(1010067|64927)

30. The clavicle articulates with \_\_\_\_\_ of scapula

- (1) Acromian process      (2) Glenoid cavity  
 (3) Acetabulum cavity      (4) Ball and socket joint

Unique Ide...MD11ZOSM33SCM-0195|64927 (MD11ZOSM17FSE)

(1010040|64927)

**31.** Match the Column-I to Column-II.

	Column-I		Column-II
(A)	Knee joint	(i)	Pivot joint
(B)	Shoulder joint	(ii)	Cartilagenous joint
(C)	Pubic symphysis joint	(iii)	Ball & Socket
(D)	Radio-ulnar joint	(iv)	Hinge joint

(1) A(iv) , B(i) , C(ii) , D(iii)

(2) A(ii) , B(iii) , C(i) , D(iv)

(3) A(iv) , B(iii) , C(ii) , D(i)

(4) A(iii) , B(iv) , C(ii) , D(i)

Unique Ide...MD12ZOSM19MSE-0003|64927 (MD11ZOSM19CQE)

(859646|64927)

**32.** Match the columns:

	Column I		Column II
(A)	Protein made up of 3 subunits	(1)	Tropomyosin
(B)	Protein of thick filament	(2)	Myosin
(C)	Protein of thin filament	(3)	Actin
(D)	Protein run close to F-actin throughout its length	(4)	Troponin

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

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

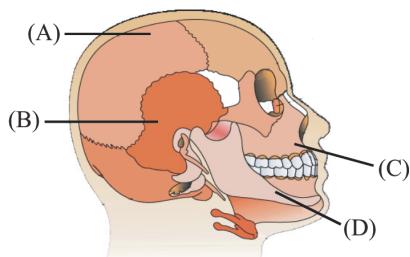
(3) A-4, B-1, C-2, D-3

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

Unique Ide...MD11ZOSM01MSM-0001|64927

(2269124|64927)

**33.** Examine the given diagrammatic view of human skull given below and identify the skull bones labelled from A-D.



	A	B	C	D
(1)	Frontal	Temporal	Maxilla	Mandible
(2)	Occipital	Frontal	Mandible	Maxilla
(3)	Parietal	Temporal	Maxilla	Mandible
(4)	Temporal	Parietal	Mandible	Maxilla

Unique Ide...MD11ZOSM36SCM-0007|64927 (MD11ZOSM11TQM)

(675022|64927)

34. Match the columns :

	<b>Column-I</b>		<b>Column-II</b>
A.	Intrinsic factor	1.	Inactive protein digestive enzyme
B.	Bile Salts	2.	Nucleic acid
C.	Trypsinogen	3.	Absorption of Vit- B <sub>12</sub>
D.	Nuclease	4.	Active protein digestive enzyme
		5.	Emulsification of fat

(1) A - 5, B - 2, C - 1, D - 4

(2) A - 3, B - 5, C - 1, D - 2

(3) A - 4, B - 5, C - 1, D - 2

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

Unique Ide...MD11ZODS18SCM-0013|64927

(1722363|64927)

35. Match the column-I with column-II :-

	<b>Column-I</b>		<b>Column-II</b>
A	Cardiac cycle	I	72 / min
B	Plasma	II	120/80 mm Hg
C	Systolic/Diastolic BP	III	0.8 seconds
D	Haemoglobin	IV	12-16 gm/dl
E	Heart beat	V	55% of the blood

(1) A-I, B-II, C-III, D-IV, E-V

(2) A-III, B-V, C-II, D-IV, E-I

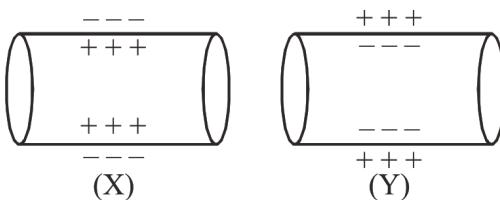
(3) A-III, B-I, C-V, D-II, E-IV

(4) A-V, B-IV, C-III, D-I, E-II

Unique Ide...MD11ZOCS16TQT-0002|64927 (MD11ZOCS16TQT)

(370548|64927)

36. Observe these two different ionic gradients and choose correct option for them ?



Options :-

	<b>X</b>	<b>Y</b>
(1)	Stimulus present	Stimulus present
(2)	Na <sup>+</sup> VGC closed	K <sup>+</sup> VGC open
(3)	Na <sup>+</sup> -K <sup>+</sup> pump closed	Na <sup>+</sup> VGC open
(4)	Na <sup>+</sup> VGC open	Na <sup>+</sup> -K <sup>+</sup> pump open

Unique Ide...MD12ZONS32SCE-0382|64927 (MD11ZONS05DBM)

(612053|64927)

37. Along with the hypothalamus, limbic system is involved in :

- (a) Motivation
- (b) Expression of emotional reactions (excitement, pleasure, rage and fear)
- (c) Sexual behaviour
- (d) Cardiovascular reflexes

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

Unique Ide...MD11ZONS33SCE-0337|64927 (NA)

(926895|64927)

38. When a stimulus is applied at a site on the polarized membrane, the membrane at that site becomes freely permeable to ..... ions. It causes rapid influx of ..... ions leading..... of the membrane-

- (1)  $\text{Na}^+$ ,  $\text{K}^+$ , depolarization
- (2)  $\text{K}^+$ ,  $\text{K}^+$ , depolarization
- (3)  $\text{K}^+$ ,  $\text{Na}^+$ , depolarization
- (4)  $\text{Na}^+$ ,  $\text{Na}^+$ , depolarization

Unique Ide...MD11ZONS05SCT-0001|64927

(2129554|64927)

39. Which one of the following options gives the incorrect categorisation of features associated with Normal/General conduction and saltatory conduction ?

	<b>Normal Conduction</b>	<b>Saltatory conduction</b>
(A)	Occurs in Non-myelinated Axon	Occurs in Myelinated Axon
(B)	Slow	Fast
(C)	Length of electric circuit formed is shorter/lesser as compared to that in saltatory conduction	Length of electric circuit formed is greater/more as compared to that in normal conduction
(D)	Less expensive (energy)	More expensive (energy)

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

Unique Ide...MD12ZONS32SCM-0171|64927 (MD11ZONS05MSM)

(562723|64927)

40. What is the main function of Nissl's granules ?

- (1) Enhance excitability of nerve cell
- (2) Help in cell division of nerve cell
- (3) Synthesize sphingomyeline
- (4) Synthesis of structural proteins and repair

Unique Ide...MD11ZONS03TQE-0016|64927

(2307384|64927)

**41.** Read the following sentences and give the answer

- (A) Short fibres which branch repeatedly and project out of cell body called dendrites.
  - (B) Neural system provides an organised network of point to point connections for a quick coordinations.
  - (C) The dendrites transmit nerve impulses away from the cell body to a synapse.
  - (D) Unmyelinated nerve fibres are not enclosed by a schwann cell in PNS.
- (1) A and C are correct where B and D are incorrect
  - (2) B and C are correct where A and D are incorrect
  - (3) A and B are correct where C and D are incorrect
  - (4) B and D are correct where A and C are incorrect

Unique Ide... **MD11ZONS03ICT-0001|64927** (**MD11ZONS03ICT**)

(**589016|64927**)

**42.** The gap between two adjacent myelin sheath is :-

- |                            |                     |
|----------------------------|---------------------|
| (1) Myelinated nerve fibre | (2) Synaptic cleft  |
| (3) Axon bundle            | (4) Node of Ranvier |

Unique Ide... **MD11ZONS33SCM-0226|64927** (**NA**)

(**1445177|64927**)

**43.** Assertion :- Thyroid gland synthesize T<sub>4</sub> (thyroxine) and triiodothyronine.

Reason :- Hyposecretion of thyrocalcitonin causes simple goitre.

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

Unique Ide... **MD11ZOCC08ARM-0001|64927**

(**2732449|64927**)

**44.** Find out correct option including all the correct statements only.

- (A) Hypothyroidism during pregnancy causes cretinism.
- (B) Glucocorticoid produces anti inflammatory reactions and suppress immune responses.
- (C) Hormones of flight and fight secreted from adrenal medulla.
- (D) Pineal gland regulates sleep wake cycle.

- (1) A & B
- (2) A, B & C
- (3) B, C, D
- (4) All are correct

Unique Ide... **MD11ZOCC30ICT-0005|64927**

(**2652878|64927**)

**45.** Find out the correct match between column-I and II.

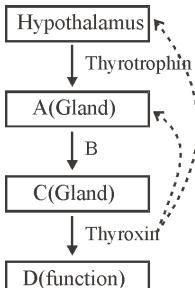
	Column - I		Column - II
A	PTH	i.	Milk synthesis
B	Oxytocin	ii.	Hypernatraemia
C	Calcitonin	iii.	Hypocalcaemia
D	Aldosterone	iv.	Blood pressure regulation
E	ADH	v.	Hypercalcaemia
		vi.	Milk ejection
		vii.	H <sub>2</sub> O loss prevention

	A	B	C	D	E
(1)	(i)	(iv)	(v)	(iii)	(ii)
(2)	(v)	(vi)	(iii)	(ii)	(vii)
(3)	(v)	(i)	(iii)	(ii)	(vii)
(4)	(v)	(vi)	(iii)	(i)	(vii)

Unique Ide...MD11Z0CC38SCT-0039|64927 (MD11Z0CC30MST)

(678779|64927)

**46.** Given below is a flow chart of hormonal action, identify the hormones / glands labelled as A,B, C and D :-



(1)	A–Neurohypophysis	B–TSH	C–Thyroid gland
(2)	A–Pituitary gland	B-GnRH	D-Sleep-wake cycle
(3)	B-TSH	C-Adenohypophysis	D-Sleep-wake cycle
(4)	A-Adenohypophysis	B-TSH	C-Thyroid gland

(1) 1

(2) 2

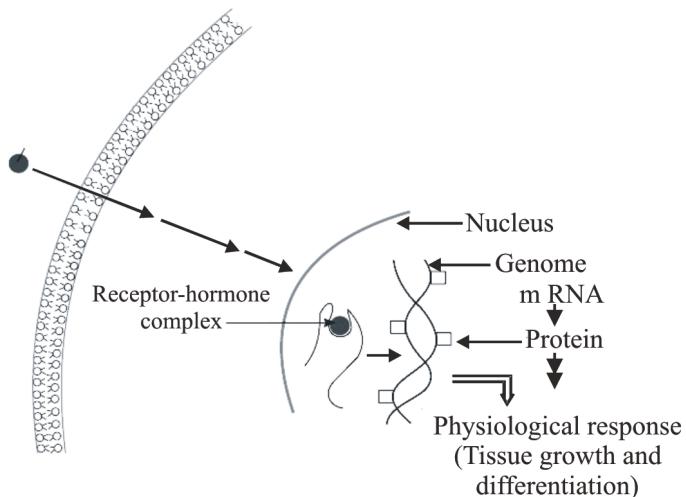
(3) 3

(4) 4

Unique Ide...MD12Z0CC34SCT-0019|64927 (MD11Z0CC19MST)

(657552|64927)

**47.** Observe the following diagram and answer :



How many hormones among following show this mechanism of action :

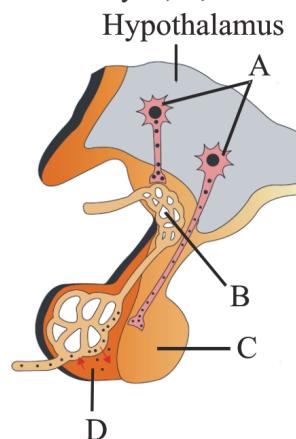
*ACTH, Prolactin, Thyroxin, ADH, Testosterone, Mineralocorticoid, Insulin*



Unique Ide... MD12ZOCC32SCM-0008|64927 (MD11ZOCC19DBT)

(563003|64927)

**48.** See the given diagrammatic representation. Identify A, B, C and D :-

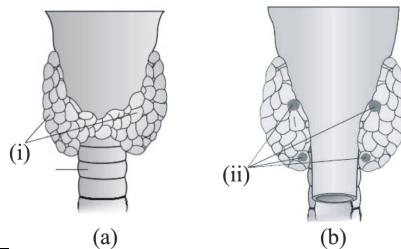


- (1) A-Hypothalamic neurons, B-Portal circulation, C-Posterior pituitary, D-Anterior pituitary
  - (2) A-Hypothalamic neurons, B-Portal circulation, C-Anterior pituitary, D-Posterior pituitary
  - (3) A- Epithalamic neurons, B-Hypothalamic vein, C-Pars distalis, D-Pars intermedia
  - (4) A-Hypothalamic neurons, B-Hypothalamic artery, C-Posterior pituitary, D-Anterior pituitary

Unique Ide... **MD11Z0CC04DBT-0001|64927** (*MD11Z0CC04DBT*)

(967791|64927)

49. Identify the gland (a) & (b) shown below and select right option giving their number & function.



	Gland	Number	Function
(1)	(i) Thyroid	1 pair	Promotes the bone deformation
(2)	(ii) Thyroid	2 pair	Promotes the stunted growth of growing baby during pregnancy
(3)	(i) Parathyroid	1 pair	Increases the $\text{Ca}^{+2}$ level in bone
(4)	(ii) Parathyroid	2 pair	Increase the $\text{Ca}^{+2}$ in blood

Unique Ide...MD11ZOCC10DBT-0001|64927 (MD11ZOCC10DBT)

(618619|64927)

50. Read the following statement and find out the incorrect statements :-

- a. Insulin acts mainly on hepatocytes while glucagon acts on both hepatocytes and adipocytes.
- b. Insulin stimulates glycogenolysis and gluconeogenesis while glucagon stimulates the glycogenesis.
- c. The glucose homeostasis in blood is maintained by both insulin and glucagon jointly.
- d. Prolonged hyperglycemia leads to diabetes mellitus which is associated with loss of glucose through urine and formation of harmful compound known as a ketone bodies.
- e. Diabetic patients are successfully treated with insulin therapy.

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

Unique Ide...MD11ZOCC36SCE-0031|64927 (MD11ZOCC14ICT)

(569369|64927)