Monthly Progressive Test

Class: XI

Subject: PCMB

Test Booklet No.: MPT07	Test Date: 22112024
Time: 120 mins	Full Marks: 200

Solutions

Physics

1. ©

As upthrust is equal to the weight of volume of liquid displaced.

2. Ⓑ

At top : $v' = (v + wr)$

Bottom : $v'' = (v - wr)$

3. Ⓑ

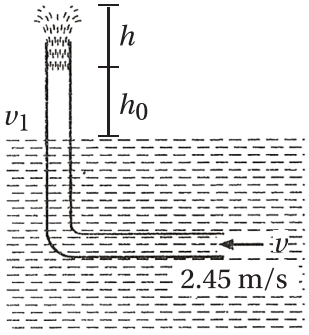
$$\frac{1}{2}\rho v^2 = h_0\rho g + \frac{1}{2}\rho v_1^2$$

(K.E at lower end = Pressure energy + K.E.)

$$v_1 = \sqrt{\left(v^2 - 2gh_0\right)}$$

$$2gh = v^2 - 2gh_0$$

$$h = \frac{(2.5)^2}{2\times 9.8} - 0.12 = 0.20 \text{ m} = 20 \text{ cm}$$



4. Ⓓ

$$A_1v_1 = A_2v_2$$

$$\pi(4R^2)\cdot v = \pi R_2 \cdot v_2$$

$$v_2 = 4v$$

5. ©

$$m = (1)^3 \times 1000 = 1000 \text{ kg}$$

$$w = mg\frac{h}{2} = \frac{1000 \times 9.8 \times 1}{2} = 4900 \text{ J}$$

6. Ⓑ

$$\frac{t_1}{t_2} = \frac{\sqrt{H} - \sqrt{H/2}}{\sqrt{H/2}} = \sqrt{2} - 1$$

7. Ⓑ

Upthrust = weight of liquid displaced by body

8. Ⓑ

$V = \pi r^2 l$

$\Rightarrow \ln V = \ln \pi + 2\ln r + \ln l \qquad \Rightarrow \frac{dV}{V} = 0 + 2\frac{dr}{r} + \frac{dl}{l}$

Put $dV = 0$

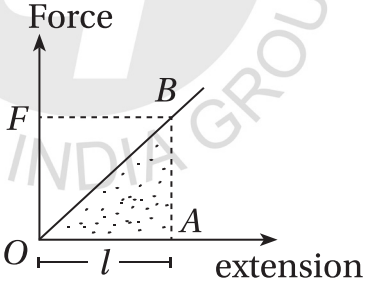
$\Rightarrow 2\frac{dr}{r} + \frac{dl}{l} = 0$

Therefore, $\frac{dl}{l} = -2\frac{dr}{r} \Rightarrow \frac{-\frac{dr}{r}}{\frac{dl}{l}} = 1/2 \Rightarrow$ Poisson's ratio $= 0.5$

9. Ⓓ

$U = \frac{1}{2} \cdot F \cdot l$

U = area of ΔOAB



10. Ⓐ

$$\frac{dV}{V} = \frac{dl}{l}\left[\frac{1 + 2\left(\frac{dr}{r}\right)}{\left(\frac{dl}{l}\right)}\right] = \frac{dl}{l}(1 - 2\sigma) \qquad \text{(refer solution of Q.No.8)}$$

11. Ⓑ

$U = \frac{1}{2} \times F \times \Delta l$

$u = \frac{U}{AL} = \frac{1}{2} \times \left(\frac{F}{A}\right) \times \left(\frac{Al}{L}\right)$

$= \frac{1}{2} \times \text{Stress} \times \text{Strain}$

12. ©

$$\alpha = \frac{\Delta l}{l\theta}$$

Thermal stress

$$\frac{F}{A} = y \times \text{Strain} = y\alpha\theta \qquad \therefore F = yA\alpha\theta$$

13. ©

$$B = \frac{P}{\left(-\frac{\Delta V}{V}\right)} = \frac{1}{K}$$

$$[B] = M \cdot \frac{L}{T^2} \cdot L^{\frac{1}{2}} = ML^{-1}T^{-2}$$

$$[K] = M^{-1}LT^2$$

14. ©

$$\frac{l_1}{l_2} = \frac{1}{2} \qquad \frac{F_1}{F_2} = \frac{2}{1} \qquad r_1 = r_2 \quad A_1 = A_2, \epsilon = \text{strain}$$

$$\frac{\frac{F_1}{A}}{\frac{F_2}{A}} = \frac{y}{y} \cdot \frac{\varepsilon_1}{\varepsilon_2} \qquad \Rightarrow \frac{2}{1} = \frac{\varepsilon_1}{\varepsilon_2}$$

15. Ⓑ

SI unit of pressure = N/m^2 = Pascal

16. Ⓐ

As pressure $\propto$ height of air column

17. Ⓓ

Reaction force is along the line of action of force but in opposite sense, asper Newton's third law.

18. Ⓐ

Sound emits from a vibrating source in all directions.

19. Ⓐ

20. Ⓑ

Speed of sound in air = 332 m/s

21. ©

$$C_V = \frac{R}{r-1} = \frac{R}{\frac{19}{13}-1} = \frac{13R}{6}$$

22. Ⓑ

$$\frac{n_1}{r_1-1} + \frac{n_2}{r_2-1} = \frac{n_1+n_2}{r-1} \quad \Rightarrow \frac{1}{\left(\frac{5}{3}\right)-1} + \frac{n_2}{\left(\frac{7}{5}-1\right)} = \frac{1+n_2}{\frac{19}{13}-1}$$

$$\Rightarrow \frac{3}{2} + \frac{5n_2}{2} = \frac{13(1+n_2)}{3} \quad \Rightarrow 3+5n_2 = \frac{13(1+n_2)}{3}$$

$$\Rightarrow 9+15n_2 = 13+13n_2 \quad \Rightarrow 2n_2 = 4 \quad n_2 = 2 \text{ moles}$$

23. Ⓑ

$$C_{rms} = \sqrt{\frac{3RT}{M}}$$

$$\frac{V'}{v} = \sqrt{\frac{480}{120}} = 2$$

$$V' = 2V$$

24. Ⓓ

$\frac{f}{2}kT$ $\quad f$ = degree of freedom

$= 5$

25. Ⓓ

$$A_1 = \frac{1}{2} \times 2 \times 2 + 2 \times 1 = 4$$

$$A_2 = 2 \times 3 = 6$$

$$A_3 = 1 \times 1 + \frac{1}{2} \times 2 = 2$$

$A = A_1 + A_2 + A_3 = 12$

w = area under p–v graph

1 atm = 10^5 N/m^2

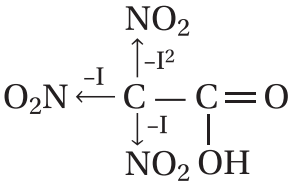
$w = 12 \times 10^5$ J

Chemistry

26. ⓓ

Correct order of Bronsted acidity is

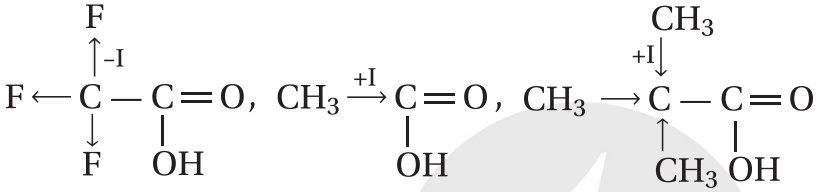
$(NO_2)_3C{\cdot}COOH < CF_3COOH < CH_3COOH < (CH_3)_3\,C{\cdot}COOH$



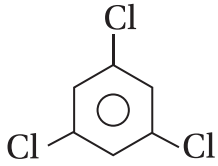
NO_2 group has the highest –I effect. So it will give the H^+ most easily.

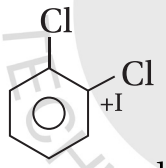
F is the most electronegative effect.

CH_3 group has + I effect.



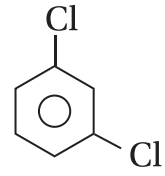
27. ⓓ

(I) 

(II) 

$\cos 60 = \frac{1}{2}$

(III) 

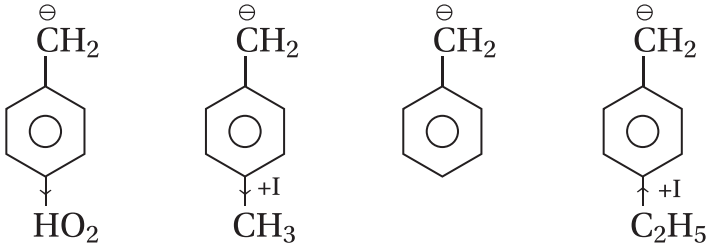
(IV) 

$\cos 120 = -1$

$\mu_o > \mu_m > \mu_p$

$\mu = \sqrt{\mu_1^2 + \mu_2^2 + 2\mu_1\mu_2\cos\theta}$

28. Ⓐ



(A) (B) (C) (D)

29. Ⓑ

Lassaignes test is not given by those compounds which have — N ═ N — part, as on heating of these compounds during this test N_2 gas is released and thus cyanide ion (CN^-) can not be formed. Thus $C_6H_5 — N = N — C_6H_5$ does not give Prussian blue colour.

30. Ⓓ

Assertion is wrong but reason is correct. Thus the answers is D. Esters $R-\overset{\overset{O}{\|}}{C}-O-R$, exhibit metamerism due to the difference in the nature of the alkyl groups attached to the $-\overset{\overset{O}{\|}}{C}-O-$ group.

31. Ⓐ

Assertion is correct: $H_3C-\overset{\overset{O}{\|}}{C}-\overset{*}{\underset{\underset{CH_3}{|}}{CH}}-CH_2-CH_3$ is a optically active molecule,

(3-methyl pentan-2-one)

Reason is also correct as the third carbon is a chiral carbon and it is the correct explanation of assertion. Thus the answer is 'A'.

32. Ⓓ

$$\begin{array}{l} CHCOO^{\ominus}K^{+} \\ \| \\ CHCOO^{\ominus}K^{+}(aq) + 2H_2O\,(l) \rightleftharpoons \underbrace{CH \equiv CH}_{\text{(ethyne)}} + \underbrace{2CO_2}_{\text{At anode}} + \underbrace{2NaOH + H_2}_{\text{At cathode}} \end{array}$$

33. Ⓓ

In Carius method of halogen estimation fuming HNO_3 and silver nitrate is used

34. Ⓓ

$$\overset{1}{H_3C}-\overset{2}{\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}}-\overset{3}{CH_2}-\overset{4}{\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}}-\overset{5}{CH_3}$$ (2, 2, 4, 4-tetra methyl pentane)

35. Ⓓ

Tertiary butyl carbocation is more stable than methyl carbocation. Inductive effect and hyper conjugation are responsible from this fact.

$\overset{+}{C}H_3$, $(CH_3)_3C^{\oplus} \equiv H_3C \rightarrow \overset{CH_3}{\underset{CH_3}{\overset{\downarrow}{\underset{\uparrow}{C^{\oplus}}}}}-$; $H_3C-\overset{H_2C-H}{\underset{CH_3}{C^{\oplus}}} \longleftrightarrow H_3C-\overset{H_2C}{\underset{CH_3}{C}}$

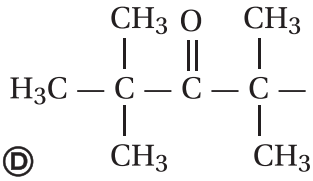
(Methyl carbocation)

+1 effect

More Hyper conjugation

36. Ⓒ

Assertion is true but reason in wrong thus the option 'C' is correct.


does not show tautomerism. This is correct.

37. Ⓓ

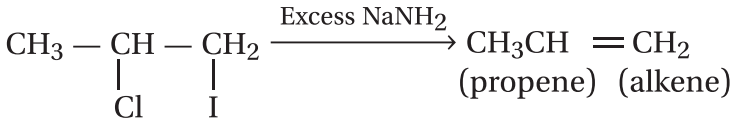
Assertion is wrong : Reason is correct. Then the answer is 'D'. Boiling point depends on the following:

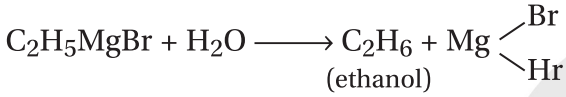
(i) Boiling point α Intermolecular force of attraction.

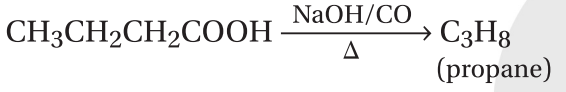
(ii) Boiling point α number of carbon chain

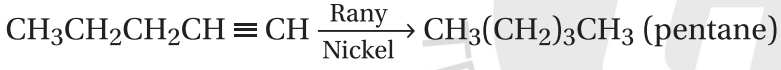
(iii) Boiling point α $\frac{1}{\text{Branching}}$

38. Ⓓ

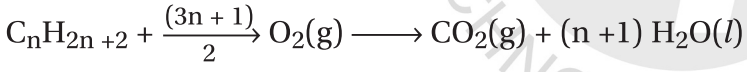

(propene) (alkene)







39. Ⓓ



40. Ⓐ

Steam distillation is a technique used to separate substances that are steam volatile and immiscible with water.

41. Ⓑ

$200 \times 0.2 = (200 - 25) \times x$

$\Rightarrow x = 0.228$ (N)

42. Ⓒ

SF_6, PF_5, CCl_4, CS_2- Here all molecules of zero dipole moment (μ = e.d.).

μ of NF_3, ClF_3, $NH_3 \neq 0$

43. Ⓓ

Statement I is wrong us bond length of O — O in H_2O_2 is greater than that of O_2 molecule.

Statement II is also wrong. InClF_3 two lone pairs are is equatorial position.

Statement III is true —two lone pair, on the central atom of XeF_4.

44. Ⓐ

Correct order of bond length is $C_2H_6 > C_2H_4 > C_2H_2$

$H_3C - \underset{1.54Å}{CH_3}$, $H_2C = \underset{1.34Å}{CH_2}$, $HC \equiv \underset{1.20Å}{CH}$

45. Ⓐ

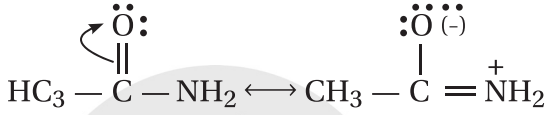
Correct order of thermal stability is $BaCO_3 > SrCO_3 > CaCO_3 > MgCO_3$

46. Ⓑ

Ethanol is more soluble in water than methoxy methane. This is property explained by ethanol can from stronger hydrogen bond but methoxy methane can not.

47. Ⓑ

CH_3CONH_2 is weaker Lewis base than $CH_3CH_2NH_2$ because the lone pair in CH_3CONH_2 takes part in resonance while that in $CH_3CH_2NH_2$ does not.

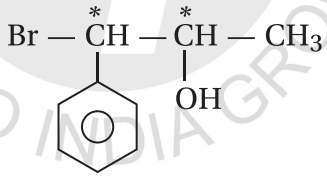


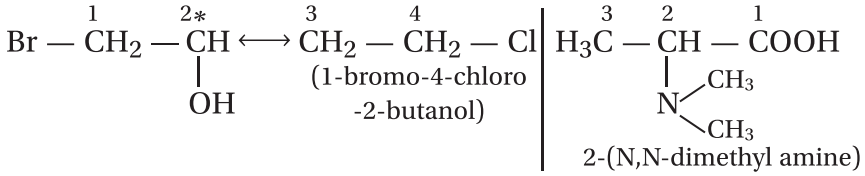
48. Ⓐ

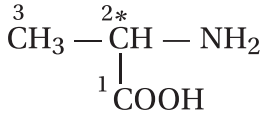
All the three statements are wrong. So, correct option is Ⓐ

49. Ⓐ

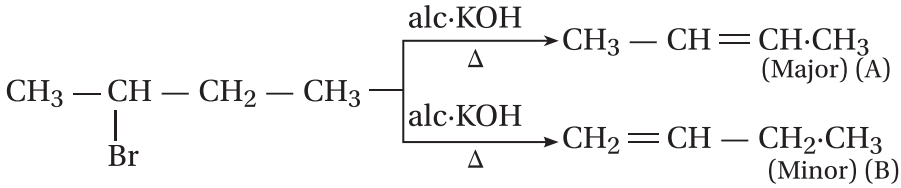
3-bromo – 3-phenyl –2-Propanol has two chiral carbon.







50. Ⓒ



51. ⓓ

$2x^2 + \lambda xy + 2y^2 + (\lambda - 4)x + 6y - 5 = 0$ represents circle.

$\therefore \lambda = 0$

$\therefore 2x^2 + 2y^2 - 4x + 6y - 5 = 0$

$\Rightarrow x^2 + y^2 - 2x + 3y - \frac{5}{2} = 0$

$\Rightarrow \text{radius} = \sqrt{(-1)^2 + \left(\frac{3}{2}\right)^2 + \frac{5}{2}}$

$= \sqrt{1 + \frac{9}{4} + \frac{5}{2}}$

$= \sqrt{\frac{4+9+10}{4}} = \frac{\sqrt{23}}{2}$

52. ⓓ

$x^2 + y^2 - 20y + 90 = 0$

Centre = (0, 10)

radius = $\sqrt{0 + 100 - 90} = \sqrt{10}$

$\perp$ distance from (0, 10) to the line $y = mx = \frac{10}{\sqrt{1+m^2}}$

$\therefore \frac{10}{\sqrt{1+m^2}} > \sqrt{10}$

$\Rightarrow 100 > 10(1 + m^2)$

$\Rightarrow m^2 + 1 < 10$

$\Rightarrow m^2 - 9 < 0$

$\Rightarrow (m + 3)(m - 3) < 0$

$\Rightarrow |m| < 3$

53. ⓓ

$y^2 = 4(x + 1)$

Vertex (–1, 0)

54. ⓒ

$x^2 - 4x - 2y - 8 = 0$

$\Rightarrow (x - 2)^2 = 2y + 8 + 4$

$\Rightarrow (x - 2)^2 = 2y + 12$

$\Rightarrow (x - 2)^2 = 2(y + 6)$

$\therefore$ length of latus rectum = 2

55. ©

$(y-2)^2 = x+4$

$\therefore$ equation of axis $y = 2$

$\therefore$ It is symmetric about $y = 2$

56. ©

$$\lim_{x \to 0} \frac{\sqrt{1-\cos x^2}}{1-\cos x}$$

$$= \lim_{x \to 0} \frac{\sin x^2 (1+\cos x)}{\sin^2 x \sqrt{1+\cos x^2}}$$

$$= \lim_{x \to 0} \frac{\frac{\sin x^2}{x^2}(1+\cos x)}{\left(\frac{\sin x}{x}\right)^2 \sqrt{1+\cos x^2}} = \frac{1\times 2}{1\times\sqrt{2}} = \sqrt{2}$$

57. Ⓓ

$y = \sqrt{\sin x + \sqrt{\sin x + \sqrt{\sin x + \quad}}}$ .....∞

$\Rightarrow y^2 = \sin x + y$

$\Rightarrow 2y\frac{dy}{dx} = \cos x + \frac{dy}{dx}$

$\Rightarrow \frac{dy}{dx} = \frac{\cos x}{2y-1}$

58. Ⓐ

$$\lim_{x \to \infty} \frac{(x+1)^{10} + (x+2)^{10} + ... + (x+100)^{10}}{x^{10} + 9^{10}}$$

$$\lim_{x \to \infty} \frac{x^{10}\left\{\left(1+\frac{1}{x}\right)^{10} + \left(1+\frac{2}{x}\right)^{10} + ... + \left(1+\frac{100}{x}\right)^{10}\right\}}{x^{10}\left(1+\frac{9^{10}}{x^{10}}\right)}$$

$$= \frac{100}{1} = 100$$

$\therefore$ Assertion is true.

Reason is also true and reason is the correct explanation of (A).

59. (B)

$$= \lim_{x \to \infty} \left(\cos\frac{\pi}{x}\right)^x$$

$$= \lim_{x \to \infty} e^{(\cos \pi/x - 1)x} \quad [\because 1^{\alpha} \text{ form}]$$

$$= \lim_{x \to \infty} e^{-\left(1-\cos\frac{\pi}{x}\right)x}$$

$$= \lim_{x \to \infty} e^{-\frac{\sin^2 \pi/x}{\frac{\pi^2}{x^2}} \times x \times \frac{\pi^2}{x^2} \times \frac{1}{(1+\cos \pi/x)}}$$

$$= \lim_{x \to \infty} e^{-\left(\frac{\sin \pi/x}{\pi/x}\right)^2 \times \frac{\pi^2}{x} \times \frac{1}{(1+\cos \pi/x)}}$$

$$= e^{-1 \times 0 \times \frac{1}{2}} = e^0 = 1$$

$\therefore$ Assertion is true.

$$\lim_{x \to \infty} -\pi \tan \pi/x = 0$$

$\therefore$ Reason is also true.

But reason is not the correct explanation of (A).

60. (B)

Co-ordinates of P and Q are $(at_1^2,\ 2at_1)$ and $(at_2^2,\ 2at_2)$

$$\text{Slope of PQ} = \frac{2at_2 - 2at_1}{at_2^2 - at_1^2}$$

$$= \frac{2\cancel{a}(t_2 - t_1)}{\cancel{a}(t_2 - t_1)(t_2 + t_1)}$$

$$= \frac{2}{t_2 + t_1}$$

61. Ⓐ

Equattion of PQ is

$y - 2at_1 = \frac{2}{t_2 + t_1}(x - at_1^2)$

$\Rightarrow y(t_1 + t_2) - 2at_1(t_2 + t_1) = 2x - 2at_1^2$

$\Rightarrow y(t_1 + t_2) - 2at_1t_2 - \cancel{2at_1^2} = 2x - \cancel{2at_1^2}$

$\Rightarrow y(t_1 + t_2) - 2at_1t_2 = 2x$

$\Rightarrow 2x - y(t_1 + t_2) + 2at_1t_2 = 0$

62. Ⓐ

$\because$ PQ passes through the point (c, 0)

$\therefore 2c - 0 + 2at_1t_2 = 0$

$\Rightarrow t_1t_2 = \frac{-c}{a}$

63. Ⓐ

$(x - 1)^2 + (y - 3)^2 = r^2$

Centre = (1, 3) and radius = r

$x^2 + y^2 - 8x + 2y + 8 = 0$

$\Rightarrow (x - 4)^2 + (y + 1)^2 = 17 - 8 = 9 = (3)^2$

$\therefore$ centre (4, –1) and radius = 3

Distance between two centres

$= \sqrt{9+16} = 5$

$\therefore$ Sum of radii = r + 3 and difference of radii = r – 3

$\therefore r - 3 < 5$ and $r + 3 > 5$

$\Rightarrow r < 8$ and $r > 2$

$\Rightarrow 2 < r < 8$

64. Ⓑ

Equation of parabola is

$(x - a)^2 = \ell(y - b)$

$\Rightarrow (x - a)^2 = \frac{\ell}{2}(2y - 2b)$

65. Ⓑ

$x\sqrt{1+y} + y\sqrt{1+x} = 0$

$\Rightarrow x\sqrt{1+y} = -y\sqrt{1+x}$

$\Rightarrow x^2(1+y) = y^2(1+x)$

$\Rightarrow x^2 + x^2y - y^2 - y^2x = 0$

$\Rightarrow (x-y)(x+y) + xy(x-y) = 0$

$\Rightarrow (x-y)(x+y+xy) = 0 \quad (x \neq y)$

$\Rightarrow y(1+x) = -x$

$\Rightarrow y = \dfrac{-x}{1+x}$

$\Rightarrow \dfrac{dy}{dx} = \dfrac{(1+x)(-1)+x}{(1+x)^2} = \dfrac{-1}{(1+x)^2}$

66. Ⓐ

$(m+n)(m+n-1) = 90, \ (m-n)(m-n-1) = 30$

$\Rightarrow m+n = 10$ and $m-n = 6$

$\therefore m = 8$ and $n = 2$

67. Ⓓ

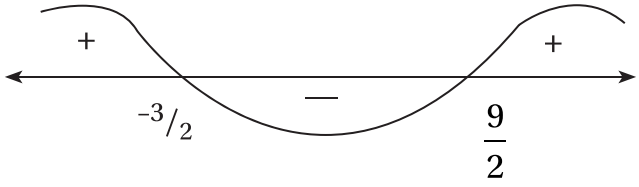
$\left(\sqrt{x} - \dfrac{1}{\sqrt{x}}\right)^{10}$

$\therefore$ middle term $= t_6 = {}^{10}c_5(\sqrt{x})^5\left(-\dfrac{1}{\sqrt{x}}\right)^5$

$= -{}^{10}C_5$

68. Ⓓ

$\dfrac{2x+3}{2x-9} < 0 \Rightarrow \dfrac{-3}{2} < x < \dfrac{9}{2}$



69. Ⓒ

$$\frac{x}{\cos\theta} = \frac{y}{\cos\left(\theta + \frac{2\pi}{3}\right)} = \frac{z}{\cos\left(\theta - \frac{2\pi}{3}\right)} = K \text{ (let)}$$

$\therefore x = K\cos\theta, \ y = K\cos\left(\theta + \dfrac{2\pi}{3}\right), \ z = K\cos\left(\theta - \dfrac{2\pi}{3}\right)$

$x + y + z = K\left[\cos\theta + \cos\left(\theta + \dfrac{2\pi}{3}\right) + \cos\left(\theta - \dfrac{2\pi}{3}\right)\right]$

$= K\left[\cos\theta + 2\cos\theta \ \text{Cos}\ \dfrac{2\pi}{3}\right]$

$= K\left[\cos\theta - \cancel{2} \times \cos\theta \times \frac{1}{\cancel{2}}\right]$

$= 0$

70. ©

$n(A^C \cap B^C)$

$= n(A \cup B)^C$

$= n(\cup) - n(A \cup B)$

$= 700 - [200 + 300 - 100]$

$= 700 - 400 = 300$

71. Ⓑ

$$\sqrt{\frac{1-\sin 2x}{1+\sin 2x}} = \frac{\cos x - \sin x}{\cos x + \sin x}$$

$$= \frac{1-\tan x}{1+\tan x}$$

$= \tan(\pi/4 - x)$

$$\therefore \frac{d}{dx}\left(\sqrt{\frac{1-\sin 2x}{1+\sin 2x}}\right) = -\sec^2\left(\frac{\pi}{4} - x\right)$$

72. Ⓑ

$3f(x) - 2f(\frac{1}{x}) = x$

$\Rightarrow 3f(\frac{1}{x}) - 2f(x) = \frac{1}{x}$

$9f(x) - 6f(\frac{1}{x}) = 3x$

$-4f(x) + 6f(\frac{1}{x}) = \frac{2}{x}$

adding $\quad 5f(x) = 3x + \frac{2}{x}$

$f(x) = \frac{1}{5}[3x + \frac{2}{x}]$

$$\Rightarrow f'(x) = \frac{3}{5} + \frac{2}{5}\left(-\frac{1}{x^2}\right)$$

$$= \frac{3}{5} - \frac{2}{5x^2}$$

$$\therefore f'(2) = \frac{3}{5} - \frac{2}{20} = \frac{12-2}{20} = \frac{10}{20} = \frac{1}{2}$$

73. ⓓ

$$\lim_{x \to \infty} \left(\frac{x^3}{3x^2-4} - \frac{x^2}{3x+2} \right)$$

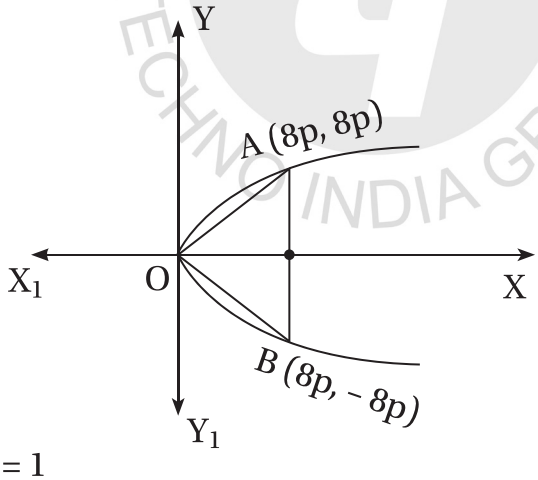
$$\lim_{x \to \infty} \left[\frac{3x^4+2x^3-3x^4+4x^2}{(3x+2)(3x^2-4)} \right]$$

$$\lim_{x \to \infty} \frac{2x^3+4x^2}{(3x+2)(3x^2-4)}$$

$$\lim_{x \to \infty} \frac{2x^2(x+2)}{(3x+2)(3x^2-4)}$$

$$\lim_{x \to \infty} \frac{2x^2 \times x\left(1+\frac{2}{x}\right)}{x^3\left(3+\frac{2}{x}\right)\left(3-\frac{4}{x^2}\right)} = \frac{2}{9}$$

74. ⓑ



m_1 = Slope of OA = 1

m_2 = Slope of OB = –1

$\therefore$ product = $m_1 m_2 = -1$

$\Rightarrow \angle AOB = \frac{\pi}{2}$

75. ⓒ

Let the equation of circle be

$x^2 + y^2 + 2gx + 2fy + c = 0$

$\therefore$ it passes through (0, 0), (1, 0)

$\therefore c = 0$

$1 + 0 + 2g + 0 + 0 = 0$

$g = \frac{-1}{2}$

$\therefore$ radius $= \sqrt{\frac{1}{4} + f^2 - 0} = \sqrt{f^2 + \frac{1}{4}}$

$\therefore$ two circles touch internally.

$\therefore 3 - \sqrt{f^2 + \frac{1}{4}} = \sqrt{\frac{1}{4} + f^2}$

$\Rightarrow 3 = 2\sqrt{f^2 + \frac{1}{4}}$

$\Rightarrow 9 = 4\left(f^2 + \frac{1}{4}\right) = 4f^2 + 1$

$\Rightarrow 4f^2 = 8 \Rightarrow f^2 = 2 \Rightarrow f = \pm\sqrt{2}$

$\therefore \left(\frac{1}{2}, \sqrt{2}\right)$ or $\left(\frac{1}{2}, -\sqrt{2}\right)$

Biology

76. Ⓐ

Volume of air inspired or expired.

77. Ⓑ

CO

It forms a stable complex with haemoglobin, called carboxy haemoglobin. Its binding affinity with haemoglobin is 200 times that of oxygen.

78. Ⓓ

Left Atrium → Left Ventricle → Aorta → Arteries → Tissues → Veins → Right Atrium

79. Ⓑ

Heart

Produced by cardiac muscles of the atria

80. Ⓑ

Upper wall of right atrium

81. Ⓐ

Pelvic girdle

It is a part of appendicular skeleton

82. Ⓓ

Myesthania gravis

83. Ⓑ

Left atrium and left ventricle

84. Ⓑ

Two

85. Ⓓ

Left ventricle

It has to pump blood with a very great force into the aorta, to reach all parts of the body simultaneously.

86. Ⓐ

Lower left corner of right atrium

87. Ⓑ

Both A and R are true but R is not the correct explanation of A.

88. Ⓐ

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

Because oxyhaemoglobin is unstable, hence it can easily dissociate upon reaching the tissues.

89. Ⓑ

Both A and R are true but R is not the correct explanation of A.

90. Ⓑ

Both A and R are true but R is not the correct explanation of A.

91. Ⓑ

Paralysing the prey

92. Ⓓ

To make the body light.

As an adaptation for flight.

93. Ⓐ

Modified leaf

The leaves acquire different structures to attract and trap insects.

94. Ⓒ

Mature RBCs

Presence of mitochondria would use up some of the oxygen carried by the RBC.

95. Ⓑ

400 nm to 700 nm

96. Ⓐ

Till Ca^{+2} is present in the sarcoplasm

Sliding of actin and myosin filaments continues till the Ca^{+2} ions are pumped back in the sarcoplasm , resulting in masking of actin filaments. This causes the Z lines to relax.

97. Ⓑ

Myoglobin

98. Ⓓ

4 1 2 3

99. Ⓑ

Both A and R are true but R is not the correct explanation of A.

It does not require the expenditure of energy

100. Ⓑ

Both A and R are true but R is not the correct explanation of A.