Monthly Progessive Test (Solution)

Class: XII

Subject: PCMB

Academic Excellence Programme TECHNO ACE

Test Booklet No.: MPT05 | Test Date: 22082024

Physics

1. Ⓒ

$$B = \frac{\mu_0}{4\pi} \cdot \frac{2i}{r} \Rightarrow B \propto \frac{1}{r}$$

B–r curve is a rectangular hyperbola.

2. Ⓐ

3. Ⓑ

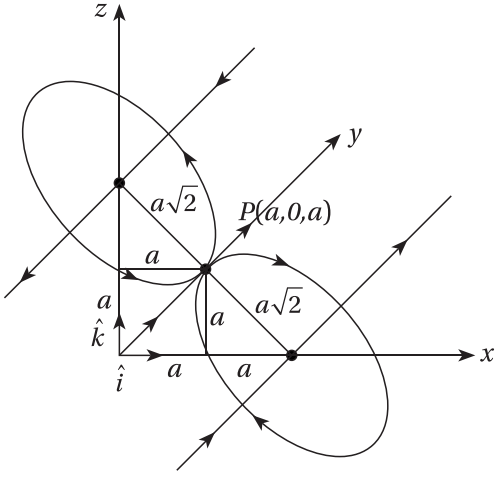
$$B = B_1 \odot - B_2 \otimes$$

$$= \frac{1}{2}\left(\frac{\mu_0 I}{2R_1} - \frac{\mu_0 I}{2R_2}\right) \odot$$

$$= \frac{1}{2}\left[\frac{\mu_0 I}{2}\left(\frac{1}{R_1} - \frac{1}{R_2}\right)\right] \odot$$

$$\Rightarrow B = \frac{\mu_0 I(R_2 - R_1)}{4R_1R_2}$$

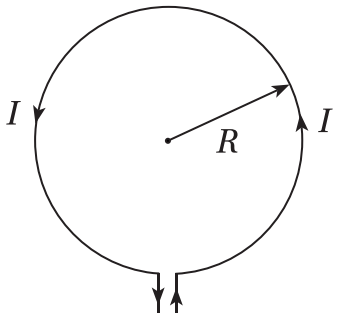
4. Ⓓ



$$\hat{u} = \frac{\hat{i} + \hat{k}}{\sqrt{1^2 + 1^2}} = \frac{1}{2}\left(\hat{i} + \hat{k}\right)$$

5. Ⓐ

6. Ⓑ



$M = I\pi R^2$

$2\pi R = L \quad \Rightarrow \quad R = \dfrac{L}{2\pi}$

$M = I\pi \cdot \dfrac{L^2}{4\pi^2} = \dfrac{IL^2}{4\pi}$ ⊙

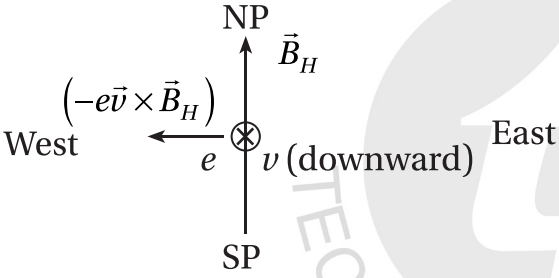
7. Ⓒ

$F = qvB\sin\theta$

$F = F_{max}$ for $\sin\theta = 1 \quad \Rightarrow \theta = \dfrac{\pi}{2}$

$F_{max} = qvB$

8. Ⓐ



9. Ⓒ

$r = \dfrac{mv}{qB} \quad \Rightarrow p = qBr$ (magnitude constant)

But v changes its direction in circular path.

10. Ⓓ

$\Phi = 6t^2 - 5t + 1$

$\dfrac{d\Phi}{dt} = 12t - 5$

$\Rightarrow \varepsilon = -\dfrac{d\Phi}{dt} = 5 - 12t$

$\Rightarrow i = \dfrac{\varepsilon}{R} = \dfrac{5-12t}{10} = \dfrac{1}{2} - \dfrac{6}{5}t$

$\Rightarrow i = \dfrac{1}{2} - \dfrac{6}{5}\cdot\dfrac{1}{4} = \dfrac{1}{2} - \dfrac{3}{10}$

$\Rightarrow i = \dfrac{5-3}{10} = \dfrac{2}{10} = 0.2$ A

$R = 10\ \Omega$

$t = 0.25$ s

$\Rightarrow t = \dfrac{1}{4}$ s

11. Ⓑ

12. Ⓐ

13. Ⓑ

$i = 5 + 10 \sin wt$ $\qquad a = 5$

$$I_{\text{eff}} = \sqrt{a^2 + \frac{b^2}{2}} = \sqrt{25 + \frac{100}{2}} = \sqrt{25 + 50} = \sqrt{75} = \sqrt{3 \times 25}$$

$$I_{\text{eff}} = 5\sqrt{3}$$

14. Ⓑ

$X_L = 100\ \Omega$

$f = 50$ Hz $\qquad X_L = wL$

$w = 2\pi f = 100\pi$

100 pL = 100

$$\Rightarrow L = \frac{1}{\pi} = 0.32 \text{ H}$$

15. Ⓐ

$$I = \frac{E}{\sqrt{R^2 + w^2 L^2}}$$

If E is steady emf as it comes from Battery we get ($L = 0$)

$$I = \frac{E}{R}$$

16. Ⓐ

17. Ⓑ

18. Ⓒ

19. Ⓒ

20. Ⓑ

21. Ⓑ

22. Ⓐ

23. Ⓐ

$qvB = qE \quad \Rightarrow vB = E = \dfrac{V}{d}$

$\Rightarrow V = vBd = 3.8 \times 10^6 \times 0.2 \times 1.5 \times 10^{-2}$

$\Rightarrow V = 1.14 \times 10^4$ Volts

(downword field)

24. Ⓓ

α–particle gets deflected downward i.e., path III.

β–particle (electron) gets deflected upward.

25. Ⓒ

$v_1 = 4.4 \times 10^6\ \text{ms}^{-1}$

$v_2 = 3.8 \times 10^6\ \text{ms}^{-1}$

$x = v_1 t$

$$y = \frac{1}{2} \cdot \frac{2e}{4m_H} \cdot \frac{V}{d} t^2$$

$$\Rightarrow y = \frac{e}{4m_H} \cdot \frac{V}{d} t^2$$

$$\Rightarrow y = \frac{e}{4m_H} \cdot \frac{vBd}{d} \cdot t^2$$

$$\Rightarrow y = \frac{e}{4m_H} \cdot vB \cdot t^2$$

$$y = \frac{1.6 \times 10^{-19}}{4 \times 1.6 \times 10^{-27}} \times 4.4 \times 10^6 \times 0.2t^2$$

$$= 1.1 \times 0.2 \times 10^{14} t^2 = 1.12 \times 10^{14} t^2$$

Chemistry

26. Ⓑ

Related equations are

$[C_6H_5OCH_3] \xrightarrow{HI} [C_6H_5O(H)CH_3]^+ + I^-$

$[C_6H_5O(H)CH_3]^+ + I^- \longrightarrow C_6H_5OH + CH_3I$

As, C_6H_5OH is an aromatic compound hence attack by the nucleophile (I^-) is too much difficult.

27. Ⓓ

$C_6H_5CH(CH_3)_2 \xrightarrow{O_2} C_6H_5C(CH_3)_2OOH \xrightarrow{H_3O^+} C_6H_5OH + (CH_3)_2CO$

So, the biproduct is $(CH_3)_2CO$. It contains ketomethyl (CH_3CO-) group hence it takes part in haloform reaction. It takes part in aldol condensation reaction but does not take part in Cannizaro's reaction.

Its tautomer is $H_2C = C(OH)CH_3$ and its functional isomer is CH_3CH_2CHO.

28. Ⓐ

4–nitrophenol is the strongest Bronsted acid as its conjugate base is the most stable due to resonance. Now, resonance contribution of 2-nitrophenate ion is lower than 4-nitrophenate ion.

29. Ⓒ

$$\underset{(MW = 138)}{\text{2–hydroxybenzoicacid}} \xrightarrow[\Delta]{NaOH + CaO} \text{Phenol} + \underset{(MW = 44)}{CO_2}$$

So.1.1 gm CO_2 is formed by $\frac{138 \times 1.1}{44} = 3.45$ gm 2-hydoxybenzoic acid

Now, 1 mole acid can react with 1 mole ethanoyl anhydride to form aspirin.

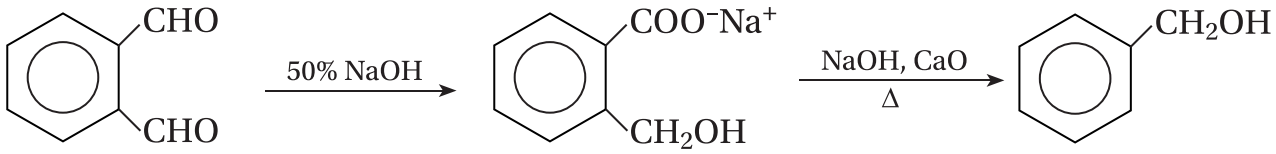
Now, 3.45 gm 2-hydroxybenzoic acid reacts with $\frac{102 \times 3.45}{138} = 2.55$ gm ethanoyl anhydride

30. Ⓑ

The equation is $RCONH_2 \xrightarrow{NaOH, \Delta} RCOO^-Na^+ + NH_3\uparrow$

So, only amide group takes part in this reaction.

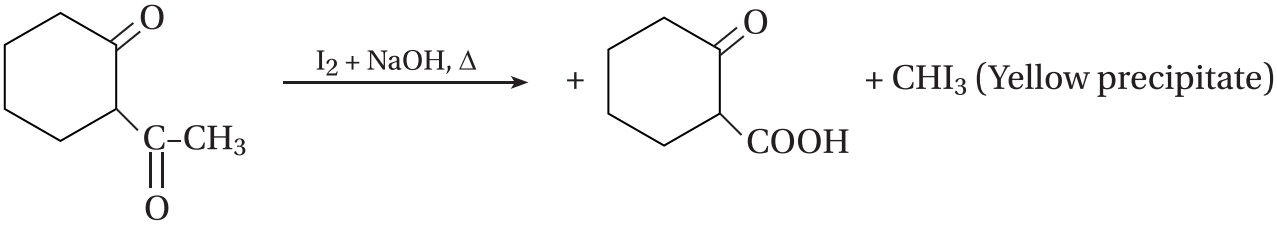
31. Ⓑ

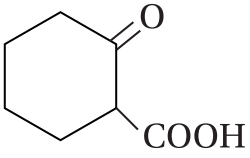


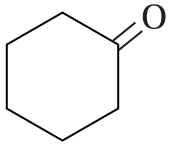
–CH_2OH is ortho / para orienting group. Benzyl alcohol is weaker Bronsted acid than phenol. As benzyl alcohol is a primary alcohol so, it does not take part in Lucus test spontaneously.

$$C_6H_5CHO \xrightarrow[H_3O^+]{CH_3MgBr} C_6H_5CH(OH)CH_3$$

32. Ⓑ





is a β-ketoacid. Hence on heating it releases CO_2 gas. So, the final product will be 

33. Ⓐ

$CH_3C{\equiv}CCOOH$ the s-chracter of α-carbon is 50%. So, it is the strongest Bronsted acid

$CH_3CH{=}CHCOOH$ the s-chracter of α-carbon is 33.33%.

$CH_3CH_2CH_2COOH$ the s-chracter of α-carbon is 25%.

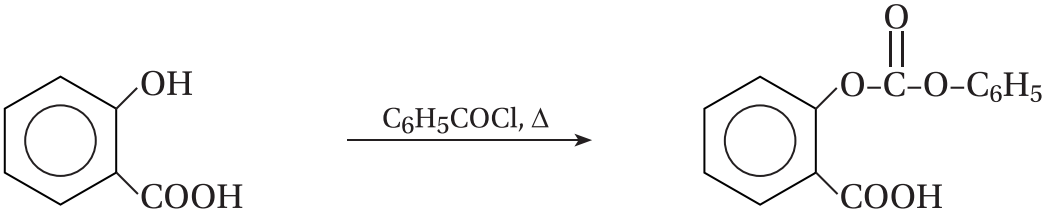
Alcohol is weaker Bronsted acid than carboxylic acid.

34. Ⓓ

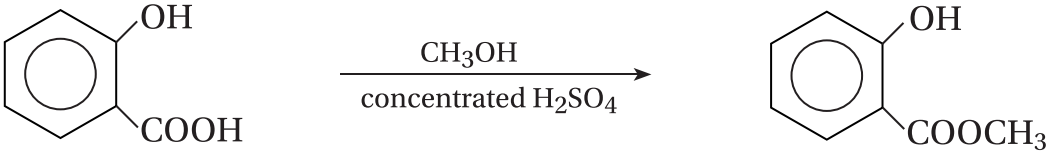
35. Ⓓ

2-hydroxybenzoic acid is produced by using Kolbe - Schmidt reaction

36. Ⓓ



37. Ⓒ



38. Ⓐ

$$CH_3CHO \xrightarrow[\text{warm}]{\text{Dilute NaOH}} CH_3CH{=}CHCHO \xrightarrow[H_3O^+]{LiAlH_4} CH_3CH_2CH_2CH_2OH$$

$$CH_3CH_2CH_2CH_2OH \xrightarrow{\text{Alkaline } KMnO_4} CH_3CH_2CH_2COOH \xrightarrow{NaOH,\ CaO} CH_3CH_2CH_3$$

39. Ⓑ

C–Cl bond is weaker than C–C bond and C–O bond. Hence, chloride is released from the molecule very easily

40. Ⓑ

$$HCOOH \xrightarrow[\text{Heat in water bath}]{\text{Fehling I + Fehling II}} Cu_2O\downarrow + CO_2\uparrow + H_2O$$

(Red)

41. Ⓒ

$$Na_2SO_4 \longrightarrow 2Na^+ + SO_4^{2-} \quad [\therefore n = 3]$$

As the solutions are isotonic,

$$i_{(Na_2SO_4)}C_{(Na_2SO_4)} = C_{(C_6H_{12}O_6)}$$

$$\therefore i_{Na_2SO_4} = \frac{0.01}{0.004} = 2.5$$

$$\alpha = \frac{(i-1)}{n-1} = \frac{(2.5-1)}{3-1} = 0.75$$

So, degree of dissociation = 75%

42. Ⓐ

$$t_{50\%} \propto \frac{1}{(\text{initial concentration})^{\text{order}-1}}$$

So, it is a third order reaction and all the given equations are true for third order reactions

43. Ⓑ

The voltage of the cell depends on the concentration of the electrolytes not on the dimension of electrodes.

44. Ⓑ

Correct order of reducing power is D > A > H_2 > B. So, metal B cannot react with dilute H_2SO_4 solution.

45. Ⓓ

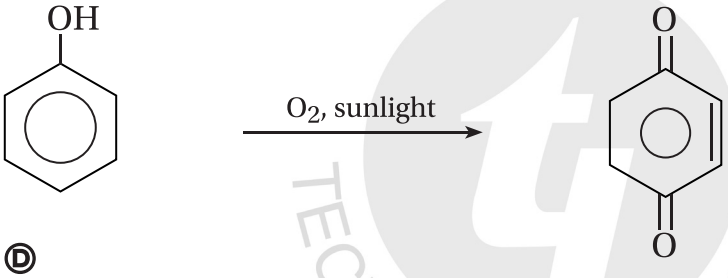
$$C_2H_5COOH \xrightarrow{Ag_2O,\ \Delta} C_2H_5COOAg \xrightarrow{Br_2,\ \Delta} C_2H_5Br$$

C_2H_5Br contains primary carbon only.

46. Ⓓ

The alkyl group are the hydrophobic part in an alcohol molecule. Now, larger the size of alkyl group, higher is the extent of repulsion with water. So, solubility decreases.

47. Ⓐ



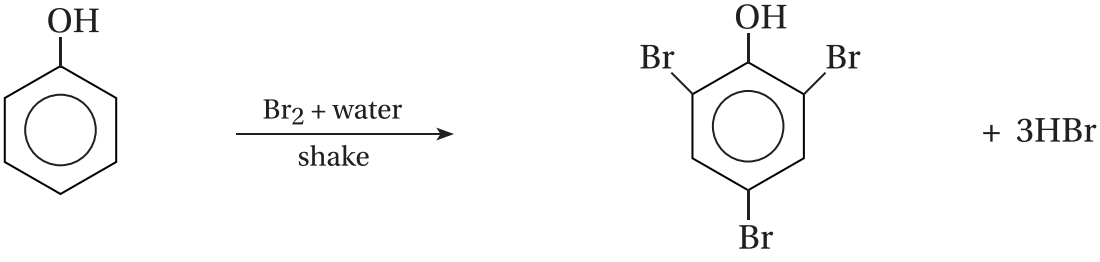
48. Ⓓ

If the alkyl group in the carboxylic acid contains strongly electron withdrawing group then the conjugate base becomes more stable and hence the acid becomes strong.

49. Ⓐ

Lone pair in amide group takes part in resonance and hence lone pair donation power decreases. But this resonanc is not possible in case of $CH_3CH_2CH_2NH_2$.

50. Ⓒ



2,4,6-tribromophenol
(white precipitation)

51. Ⓐ

$$\int \frac{\sqrt{\tan x}}{\sin x \cos x}dx = \int \frac{\sqrt{\tan x}}{\tan x} \times \sec^2 x\, dx = \int \frac{\sec^2 x}{\sqrt{\tan x}}dx = 2\sqrt{\tan x} + c$$

52. Ⓒ

Let, $a^2\cos^2 x + b^2 \sin^2 x = t$

$$\Rightarrow \left(-2a^2 \cos x \sin x + 2b^2 \sin x \cos x\right)dx = dt$$

$$\Rightarrow \left(b^2 - a^2\right)\sin 2x\, dx = dt$$

$$\Rightarrow \sin 2x\, dx = \frac{dt}{b^2 - a^2}$$

$$\Rightarrow \int \frac{\sin 2x\, dx}{a^2\cos^2 x + b^2 \sin^2 x} = \frac{1}{b^2 - a^2}\int \frac{dt}{t} = \frac{1}{b^2 - a^2}\log t + c = \frac{1}{b^2 - a^2}\log\left|a^2\cos^2 x + b^2 \sin^2 x\right| + c$$

53. Ⓒ

$$\int \frac{dx}{x\left(x^4 - 1\right)} = \int \frac{x\, dx}{x^2\left(x^4 - 1\right)} = \frac{1}{2}\int \frac{dt}{t\left(t^2 - 1\right)}$$

$$= \frac{1}{2}\int \frac{dt}{t(t+1)(t-1)} = \frac{1}{4}\left[\int \frac{1}{t-1}dt - \int \frac{2}{t}dt + \int \frac{1}{t+1}dt\right]$$

$$= \frac{1}{4}\left[\log(t-1) - 2\log t + \log(t+1)\right] + c = \frac{1}{4}\log\left(\frac{t^2 - 1}{t^2}\right) + c = \frac{1}{4}\log\left(\frac{x^4 - 1}{x^4}\right) + c$$

54. Ⓐ

$$\int \frac{dx}{(2+x)\sqrt{1+x}} = \int \frac{dx}{(1+1+x)\sqrt{1+x}} \qquad \text{Let } 1 + x = t^2 \quad \Rightarrow dx = 2t\, dt$$

$$= \int \frac{2t\, dt}{(1+t^2)t} = 2\int \frac{dt}{1+t^2} = 2\tan^{-1}(t) + c = 2\tan^{-1}\left(\sqrt{1+x}\right) + c$$

55. Ⓐ

$$I = \int_0^{\pi} \frac{x \sin x\, dx}{2 - \sin^2 x} = \int_0^{\pi} \frac{(\pi - x)\sin(\pi - x)}{2 - \sin^2(\pi - x)}dx$$

$$2I = \pi\int_0^{\pi} \frac{\sin x\, dx}{2 - \sin^2 x} = \pi\int_0^{\pi} \frac{\sin x\, dx}{1 + \cos^2 x}$$

$$\Rightarrow I = -\frac{\pi}{2}\int_0^{\pi}\frac{d(\cos x)}{1+\cos^2 x} = -\frac{\pi}{2}\left[\tan^{-1}(\cos x)\right]_0^{\pi}$$

$$= -\frac{\pi}{2}\left[-\frac{\pi}{4}-\frac{\pi}{4}\right] = \frac{\pi^2}{4}$$

56. Ⓐ

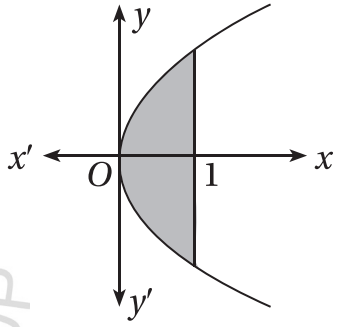
$$\int_0^{\pi}\sqrt{\frac{1+\cos 2x}{2}}\,dx = \int_0^{\pi}\sqrt{\cos^2 x}\,dx = \int_0^{\pi}|\cos x|\,dx = \int_0^{\pi/2}\cos x\,dx + \int_{\pi/2}^{\pi}-\cos x\,dx$$

$$= [\sin x]_0^{\pi/2} - [\sin x]_{\pi/2}^{\pi} = 1+1 = 2$$

57. Ⓑ

$$\text{Area} = 2\int_0^1 2\sqrt{x}\,dx = 4\left[\frac{2}{3}x^{3/2}\right]_0^1$$

$$= \frac{8}{3}[1-0]\text{ sq.unit} = \frac{8}{3}\text{ sq.unit}$$



58. Ⓐ

$$\int_{-2}^{2}\log\left(\frac{1+x}{1-x}\right)dx = 0$$

because $f(x) = \log\left(\frac{1+x}{1-x}\right)$ is odd function.

$\therefore$ (A) is true.

(R) : If $f(x)$ is an odd function, then

$\int_{-a}^{a} f(x)\,dx = 0$ True

(R) is the correct explanation of (A).

59. Ⓐ

(A) : $\int[\sin(\log x)+\cos(\log x)]\,dx = \int d[x\sin(\log x)] = x\sin(\log x)+c$ True

(R) : $\frac{d}{dx}[x\sin(\log x)] = \sin(\log x)+\cos(\log x)$ True

(R) is the correct explanation of (A).

60. Ⓑ

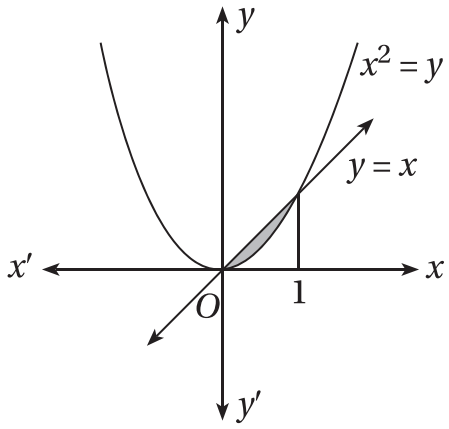
$x^2 = y,\ y = x$

$\Rightarrow x^2 = x \quad \Rightarrow x^2 - x = 0 \quad \Rightarrow x(x-1) = 0 \quad \therefore x = 0,\ x = 1$

when $x = 0,\ y = 0 \quad \therefore$ point is $(0, 0)$

when $x = 1,\ y = 1 \quad \therefore$ point is $(1, 1)$

61. Ⓐ



62. Ⓐ

$$\text{Area} = \int_0^1 \left(x - x^2\right) dx = \left[\frac{x^2}{2} - \frac{x^3}{3}\right]_0^1 \text{sq.unit} = \left(\frac{1}{2} - \frac{1}{3}\right) \text{sq.unit} = \frac{1}{6} \text{sq.unit}$$

63. Ⓑ

$$\int \sqrt{1+x^2}\ d(x^2) = \int \sqrt{1+x^2}\ d(1+x^2) = \frac{2}{3}\left(1+x^2\right)^{3/2} + c$$

64. Ⓐ

$$I = \int_0^{\pi/2} \log(\tan x)\, dx = \int_0^{\pi/2} \log\left\{\tan\left(\frac{\pi}{2} - x\right)\right\} dx = \int_0^{\pi/2} \log\cot x\, dx$$

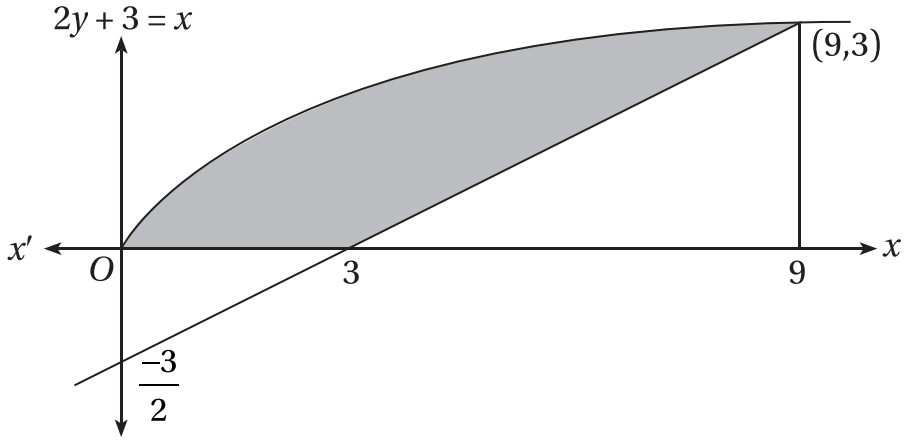
$$\therefore 2I = \int_0^{\pi/2} \left[\log(\tan x) + \log(\cot x)\right] dx$$

$$\Rightarrow 2I = \int_0^{\pi/2} \log(\tan x \cot x)\, dx = 0$$

$\therefore\ I = 0$

65. Ⓐ

$y = \sqrt{x} \quad \Rightarrow y^2 = x$



$$\text{Area} = \int_0^9 \sqrt{x}\,dx - \int_3^9 \left(\frac{x-3}{2}\right)dx = \frac{2}{3}\left[x^{3/2}\right]_0^9 - \frac{1}{2}\left[\frac{x^2}{2} - 3x\right]_3^9$$

$$= \frac{2}{3}\times 27 - \frac{1}{2}\left[\left(\frac{81}{2} - 27\right)\right] - \left(\frac{9}{2} - 9\right) = 18 - \frac{1}{2}\left[\frac{27}{2} + \frac{9}{2}\right] = (18-9)\text{ sq.units} = 9\text{ sq.units}$$

66. Ⓑ

$$y = \cos^{-1}\left(\frac{2\cos x - 3\sin x}{\sqrt{13}}\right) = \cos^{-1}\left(\cos\alpha\cos x - \sin\alpha\sin x\right)$$

where $\sin\alpha = \frac{3}{\sqrt{13}}$; $\quad \cos\alpha = \frac{2}{\sqrt{13}} \quad \therefore \tan\alpha = \frac{3}{2}$

$$= \cos^{-1}\cos(x+\alpha) = x + \alpha = x + \tan^{-1}\left(\frac{3}{2}\right)$$

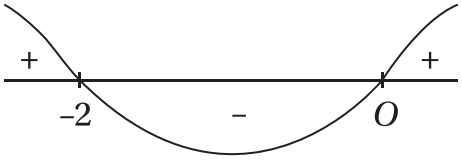
$$\therefore \frac{dy}{dx} = 1$$

67. Ⓓ

$y = x^2e^x$

$$\frac{dy}{dx} = 2xe^x + x^2e^x = xe^x(2+x)$$

Critical points: $x = 0, x = -2$



$f'(x)<0 \quad \forall x \in (-2,0)$

$f'(x)>0 \quad \forall x \in (-\infty,-2)\cup(0,\infty)$

68. Ⓑ

$$f(x)=\frac{1-\cos\lambda x}{x\sin x}; \quad x\neq 0$$

$$=\frac{1}{2} \quad ; \quad x=0$$

$$\therefore f(0)=\frac{1}{2}$$

$$\lim_{x\to 0}\frac{1-\cos\lambda x}{x\sin x}=\lim_{x\to 0}\frac{1-\cos\lambda x}{(\lambda x)^2}\times\frac{\lambda^2 x}{\sin x}=\frac{1}{2}\times\lambda^2=\frac{\lambda^2}{2}$$

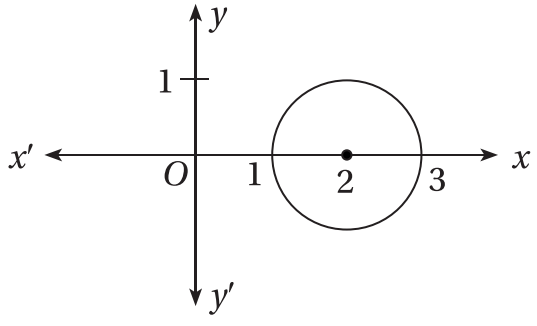
For continuous at $x=0$,

$$\frac{\lambda^2}{2}=\frac{1}{2} \quad \Rightarrow \lambda^2=1 \quad \Rightarrow \lambda=\pm 1$$

69. Ⓑ

$$y=\sqrt{(x-1)(3-x)} \quad \Rightarrow y^2=3x-x^2-3+x \quad \Rightarrow x^2+y^2-4x=-3 \quad \Rightarrow (x-2)^2+y^2=1$$

$$\therefore 0\le y\le 1$$



70. Ⓒ

$$\cos^{-1}\left(-\sin\frac{7\pi}{6}\right)=\cos^{-1}\left\{-\sin\left(\pi+\frac{\pi}{6}\right)\right\}=\cos^{-1}\left(\sin\frac{\pi}{6}\right)$$

$$=\cos^{-1}\left\{\cos(\pi/2-\pi/6)\right\}=\cos^{-1}\left\{\cos\frac{\pi}{3}\right\}=\frac{\pi}{3}$$

71. Ⓑ

$$I=\int_{\frac{\pi}{8}}^{\frac{7\pi}{8}}\frac{x\,dx}{\cos^2 x-\sin^2 x}=\int_{\frac{\pi}{8}}^{\frac{7\pi}{8}}\frac{(\pi-x)dx}{\cos 2(\pi-x)}=\pi\int_{\frac{\pi}{8}}^{\frac{7\pi}{8}}\frac{dx}{\cos 2x}-I$$

$$\Rightarrow 2I=\pi\int_{\frac{\pi}{8}}^{\frac{7\pi}{8}}\sec 2x\,dx$$

$$\Rightarrow I=\frac{\pi}{2}\times\frac{1}{2}\left[\log(\sec 2x+\tan 2x)\right]_{\frac{\pi}{8}}^{\frac{7\pi}{8}}=\frac{\pi}{4}\left[\log(\sqrt{2}-1)-\log(\sqrt{2}+1)\right]$$

$$=\frac{\pi}{4}\log\left(\frac{\sqrt{2}-1}{\sqrt{2}+1}\right)=\frac{\pi}{4}\log\left(3-2\sqrt{2}\right)$$

72. Ⓑ

$$\int\frac{3^x\,dx}{\sqrt{1-9^x}}=\frac{1}{\log_e 3}\int\frac{dt}{\sqrt{1-t^2}}$$

$$3^x=t\quad\Rightarrow 3^x\log_e 3\,dx=dt\quad\Rightarrow 3^x\,dx=\frac{1}{\log_e 3}dt$$

$$=\frac{1}{\log_e 3}\left[\sin^{-1}t\right]+c=\frac{1}{\log_e 3}\left[\sin^{-1}(3^x)\right]+c$$

73. Ⓐ

$$\int\tan^4 x\,dx=a\tan^3 x+b\tan x+cx$$

L.H.S

$$=\int\tan^2 x(\sec^2 x-1)dx=\frac{\tan^3 x}{3}-\int\left(\sec^2 x-1\right)dx=\frac{\tan^3 x}{3}-\tan x+x$$

$$\therefore a=\frac{1}{3},\quad b=-1,\quad c=1$$

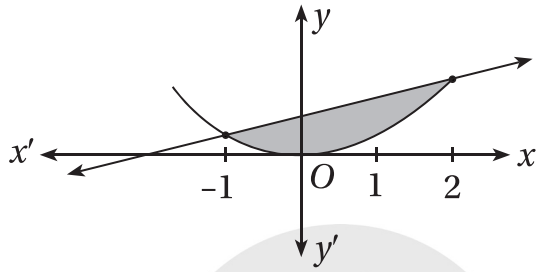
74. Ⓑ

$$\int\left(\frac{1}{\log x}-\frac{1}{(\log x)^2}\right)dx=\int\frac{dx}{\log x}-\int\frac{dx}{(\log x)^2}=\frac{1}{\log x}\times x-\int-\frac{1}{(\log x)^2}\times\frac{1}{x}\times x\,dx-\int\frac{dx}{(\log x)^2}$$

$$=\frac{x}{\log x}+\int\frac{dx}{(\log x)^2}-\int\frac{dx}{(\log x)^2}=\frac{x}{\log x}+c$$

75. Ⓑ

$x^2=4y,\ x=4y-2$



$x^2=x+2 \Rightarrow x^2-x-2=0 \Rightarrow (x-2)(x+1)=0 \Rightarrow x=2,-1$

$\therefore\ x=2,\ y=1$

$x=-1,\ y=\frac{1}{4}$

$$\therefore \text{ Area }=\int_{-1}^{2}\frac{x+2}{4}dx-\int_{-1}^{2}\frac{x^2}{4}dx=\frac{1}{4}\left[\frac{x^2}{2}+2x\right]_{-1}^{2}-\frac{1}{4}\left[\frac{x^3}{3}\right]_{-1}^{2}$$

$$=\frac{1}{4}\left[2+4-\frac{1}{2}+2\right]-\frac{1}{12}[8+1]=\frac{1}{4}\times\frac{15}{2}-\frac{9}{12}=\frac{15}{8}-\frac{3}{4}=\frac{9}{8}\text{ sq.units}$$

Biology

76. Ⓐ

Bone marrow

They make lymphocytes

77. Ⓐ

IgA

78. Ⓐ

It is used for cutting DNA at a specific location

It acts as a molecular scissor

Cont..16

79. Ⓐ

Salmonella typhimurium

80. Ⓐ

Amplification of gene of interest

81. Ⓒ

Biopiracy

82. Ⓑ

Insecticide

The toxin destroys the gut of the insects

83. Ⓓ

All

84. Ⓑ

The toxin is inactive in bacteria

It is toxic only to the insect pests

85. Ⓐ

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

86. Ⓓ

A is false but R is true

Plasmids are extra chromosomal circular DNA

87. Ⓑ

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

88. Ⓑ

Malignant tumour

Cells from the original tumour break apart and move to other parts of the body

89. Ⓓ

All

90. Ⓒ

Immunotherapy

91. Ⓑ

2 celled stage

92. Ⓒ

Parturition

93. Ⓐ

Amniocentesis

It is a method of prenatal sex determination

94. Ⓓ

All of the above

95. Ⓑ

Convergent evolution

96. Ⓓ

Sporozoites

97. Ⓓ

E.coli cloning vector

98. Ⓐ

The sequence from where replication starts

Ori stands for origin

99. Ⓒ

Transformation

100. Ⓐ

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