

All India Aakash Test Series for JEE (Advanced)-2023

TEST - 4A (Paper-2) - Code-B

Test Date : 03/04/2022

ANSWERS

PHYSICS	CHEMISTRY	MATHEMATICS
1. (A, B, C)	20. (A, C, D)	39. (A, B)
2. (A, C)	21. (A)	40. (B, C, D)
3. (B, C)	22. (A, B, C)	41. (A, B, D)
4. (A, B, D)	23. (A, B, C, D)	42. (A, D)
5. (B, C)	24. (A, B, C, D)	43. (B, C)
6. (A, B, D)	25. (B)	44. (A, D)
7. (08.00)	26. (01.50)	45. (29.00)
8. (04.00)	27. (01.60)	46. (06.00)
9. (25.00)	28. (12.50)	47. (18.00)
10. (12.00)	29. (36.00)	48. (40.00)
11. (08.31)	30. (02.00)	49. (50.00)
12. (33.24)	31. (03.00)	50. (07.00)
13. (B)	32. (B)	51. (D)
14. (D)	33. (B)	52. (B)
15. (B)	34. (D)	53. (D)
16. (D)	35. (A)	54. (B)
17. (01)	36. (04)	55. (36)
18. (06)	37. (08)	56. (27)
19. (01)	38. (54)	57. (13)

HINTS & SOLUTIONS**PART - I (PHYSICS)**

1. Answer (A, B, C)

Hint : $E = 0$ inside shell**Sol.** : $E = 0$ for $r < R$

$$\text{and, } V = \frac{-GM}{R} \text{ for } r < R$$

$$\text{For } r > R, E = \frac{GM}{r^2} \text{ and, } V = \frac{-GM}{r}$$

2. Answer (A, C)

$$\text{Hint : } Y = \frac{\text{Stress}}{\text{Strain}}$$

$$\text{Sol. : } \Delta L_s = \frac{F \times l}{Y_s(2A)}, \Delta L_c = \frac{F \times 2l}{Y_c \times A}$$

$$\Rightarrow \Delta L_c > \Delta L_s$$

$$\Delta E = \frac{1}{2} \times \frac{(\text{Stress})^2}{Y} \times (\text{Vol.})$$

$$\Rightarrow \Delta E_c > \Delta E_s$$

3. Answer (B, C)

Hint : Use Bernoulli equation**Sol.** : $P_2 > P_1$ as liquid turns through a curved path

.

 $\Rightarrow V_2 < V_1$ from Bernoulli's law.

4. Answer (A, B, D)

$$\text{Hint : } v = \frac{\partial y}{\partial t}$$

$$\text{Sol. : } kx = \frac{\pi x}{10} \Rightarrow k = \frac{\pi}{10} = \frac{2\pi}{\lambda}$$

$$\Rightarrow \lambda = 20 \text{ cm}$$

$$\text{Amplitude} = 4 \sin\left(\frac{\pi}{10} \times 5\right) = 4 \text{ cm}$$

$$v_p = \omega A = 96\pi \times 4 = 12 \text{ m/s}$$

5. Answer (B, C)

Hint : Heat lost = Heat gained

$$\text{Sol. : } Q_1 = 1 \times 80 + 1 \times 1 \times 100 = 180 \text{ cal}$$

$$Q_2 = 1 \times 540 = 540$$

$$\Rightarrow \text{Final temp.} = 100^\circ\text{C}$$

$$\therefore 180 = m \times 540$$

$$\Rightarrow m = \frac{1}{3} \text{ g}$$

$$\therefore \text{Water} = 1 + \frac{1}{3} = \frac{4}{3} \text{ g}$$

$$\text{Vapour} = \frac{2}{3} \text{ gm}$$

6. Answer (A, B, D)

$$\text{Hint and Sol. : } mg \sin \theta \times R = \left(\frac{7}{5} m R^2\right) \times \frac{a}{R}$$

$$\Rightarrow a = \frac{5}{7} g \sin \theta = \frac{5 \times 10}{7} \times \frac{1}{2} = \frac{25}{7}$$

$$\therefore f = \frac{2}{7} mg \sin \theta = \frac{2}{7} \times 1 \times 10 \times \frac{1}{2} = \frac{10}{7} \text{ N}$$

$$\text{and, } \frac{2}{7} mg \sin \theta \leq \mu mg \cos \theta \Rightarrow \mu_{\min} = \frac{2}{7} \times \frac{1}{\sqrt{3}}$$

7. Answer (08.00)

8. Answer (04.00)

Hint and Sol. for Q.Nos. 7 and 8

$$\text{Hint : } X_{cm} = \frac{m_1 x_1 + m_2 x_2}{m_1 + m_2}$$

$$\text{Solution : } m_1 = 9m, m_2 = -m$$

$$\therefore X_{cm} = \frac{9m \times 0 + (-m) \times (2R)}{(9m - m)}$$

$$= \frac{R}{4}$$

$$\therefore n = 4$$

$$9m = M$$

$$m = \frac{M}{9}$$

$$M - m = \frac{8M}{9}$$

9. Answer (25.00)

10. Answer (12.00)

Hint and Sol. for Q.Nos. 9 and 10

$$\tan \theta = \tan \alpha + \tan \beta$$

$$= \frac{3}{4} + \frac{4}{3}$$

$$\theta = \tan^{-1}\left(\frac{25}{12}\right)$$

11. Answer (08.31)
12. Answer (33.24)

Hint and Sol. for Q.Nos. 11 and 12

Hint : $\Delta Q = nC\Delta T$

$$\begin{aligned}\text{Solution : } C &= \frac{3R}{2} - \frac{R}{1.5-1} \\ &= \frac{3R}{2} - 2R \\ &= \frac{-R}{2}\end{aligned}$$

$$\therefore \Delta Q = 1 \times \left(\frac{-R}{2} \right) \times (-2) \\ = R = 8.31$$

$$= 8.31 \text{ J}$$

$$W = -2R\Delta T \\ = 33.24$$

13. Answer (B)

14. Answer (D)

Hint : $F_{\text{net}} = m \times a$

$$\text{Sol. : } T = \frac{m_A \times g}{2}$$

$$a_1 = \frac{T}{3}, \quad a_2 = \frac{20-T}{2}$$

$$a_1 = a_2 \Rightarrow \frac{T}{3} = \frac{20-T}{2}$$

$$\Rightarrow 2T = 60 - 3T \Rightarrow T = 12 \text{ N}$$

$$\therefore m_A = \frac{2 \times 12}{10} = 2.4 \text{ kg}$$

$$a_3 = \frac{1.2g}{3}$$

$$= 4 \text{ m/sec}^2$$

15. Answer (B)

16. Answer (D)

$$\frac{1}{2}m v_{\max}^2 - \frac{GMm}{2R} = \frac{1}{2}m v_{\min}^2 - \frac{GMm}{4R}$$

$$mv_{\max} 2R = mv_{\min} 4R$$

$$\text{So, } v_{\min} = \sqrt{\frac{GM}{6R}}, v_{\max} = \sqrt{\frac{2GM}{3R}}$$

$$\begin{aligned}R &= \frac{v^2}{a_1} = \frac{v_{\max}^2}{F/m} = \frac{2GM/3R}{GM/4R^2} \\ &= \frac{8R}{3}\end{aligned}$$

17. Answer (01)

Hint : $\tau = I\alpha$

$$\text{Sol. : } F \times R = \frac{3}{2}MR^2 \times \left(\frac{a_c}{R} \right)$$

$$\Rightarrow a_c = \frac{2F}{3M}$$

$$\therefore F - f = M \times \left(\frac{2F}{3M} \right)$$

$$\Rightarrow f = \frac{F}{3} \Rightarrow f = \frac{3Mg}{3} = Mg$$

$$\therefore n = 1$$

18. Answer (06)

$$\text{Hint : } \Delta F = m \frac{d^2x}{dt^2}$$

$$\begin{aligned}\text{Sol. : } \frac{1}{K_q} &= \frac{1}{K} + \frac{4}{K} + \frac{4}{K} \\ &= \frac{1}{K} + \frac{8}{K} = \frac{9}{K}\end{aligned}$$

$$K_q = \frac{K}{9}$$

$$\therefore T = 2\pi \sqrt{\frac{m \times 9}{K}} = 6\pi \sqrt{\frac{m}{K}}$$

19. Answer (01)

Hint : beats = $|v_1 - v_2|$

$$\text{Sol. : } v = \frac{1}{2L} \sqrt{\frac{T}{\mu}}$$

$$\therefore \frac{\Delta v}{v} = \frac{1}{2} \cdot \frac{\Delta T}{T}$$

$$\Rightarrow \frac{\Delta v}{200} = \frac{1}{2} \times \frac{1}{100}$$

$$\Rightarrow \Delta v = 1 \text{ Hz}$$

PART - II (CHEMISTRY)

20. Answer (A, C, D)

Hint : Internal energy decreases with decrease in volume when attractive forces dominate.

Sol. : Ideal gas is independent of volume change.

21. Answer (A)

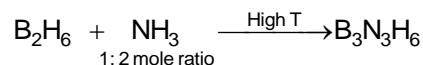
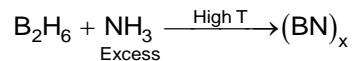
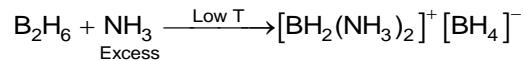
Hint : Mg is not alkali metal.

Sol. : Only Lithium burns in air to form Li_3N among alkali metals

22. Answer (A, B, C)

Hint : NH_3 Cleaves B_2H_6 unsymmetrically.

Sol. :



23. Answer (A, B, C, D)

Hint : A to B is isochoric process.

$$\Delta S_{A \rightarrow B} = nC_V \ln \frac{T_2}{T_1}$$

$$= 1 \times \frac{3R}{2} \ln \left(\frac{400}{200} \right) = 12 \ln 2$$

$$\Delta E_{B \rightarrow A} = -nC_V \Delta T$$

$$= -\frac{3R}{2} (200) = -300R$$

$$\Delta H_{A \rightarrow B} = nC_p \Delta T$$

$$= \frac{5R}{2} (200) = 500R$$

24. Answer (A, B, C, D)

Hint : $\text{pH} = \text{pK}_a + \log \frac{n_{\text{salt}}}{n_{\text{acid}}}$

Sol.:

HA:NaH

$$\text{pH} = 9 \Rightarrow 1:1$$

$$\text{pH} = 9.3 \Rightarrow 1:2$$

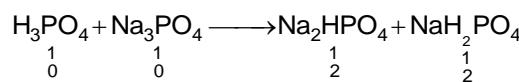
$$\text{pH} = 8.7 \Rightarrow 2:1$$

$$\text{pH} = 9.9 \Rightarrow 1:8$$

25. Answer (B)

Hint: It is a buffer of Na_2HPO_4 and NaH_2PO_4

Sol.:

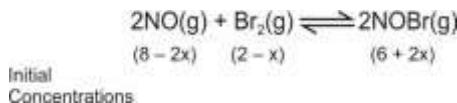


26. Answer (01.50)

27. Answer (01.60)

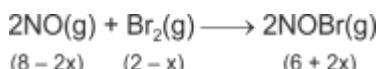
Hint and Sol. for Q.Nos. 26 and 27

Hint :



Sol. : $Q_c = \frac{6^2}{(8^2)2} < k_c$, so reaction moves in

forward direction.



$$8-2x = 6+2x$$

$$4x = 2$$

$$x = 0.5$$

$$n_T = (8-2x+2-x+6+2x) + 4.5 = 20$$

$$PV = nRT$$

$$P = 20 \times 0.08 \text{ T} = 1.6 \text{ T}$$

28. Answer (12.50)

29. Answer (36.00)

Hint and Sol. for Q.Nos. 28 and 29

Hint and Sol. :

- The amount of energy required for Rahul

$$= 1250 \times 0.5 \times 200$$

$$= 12.5 \times 10^4 \text{ kJ year}^{-1}$$

- The amount of energy required for a car

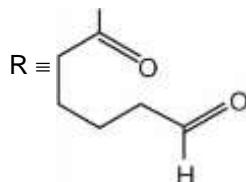
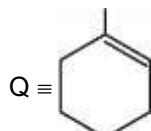
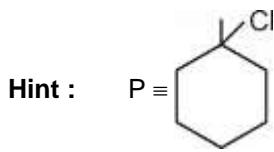
$$= \frac{500 \times 0.76}{114} \times 5400 \times 200$$

$$= 36 \times 10^5 \text{ kJ year}^{-1}$$

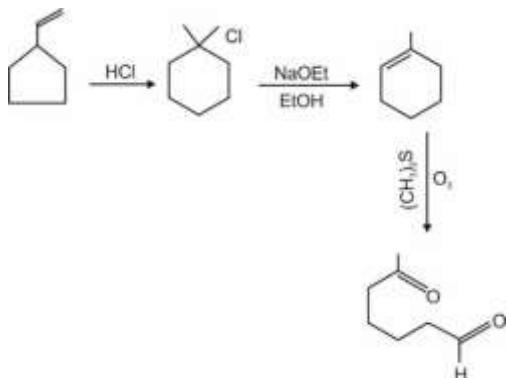
30. Answer (02.00)

31. Answer (03.00)

Hint and Sol. for Q.Nos. 30 and 31



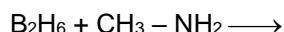
Sol. :



32. Answer (B)

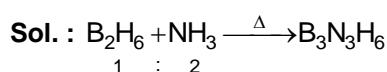
Hint : Compound A is B_2H_6

Sol. :



33. Answer (B)

Hint : Compound B is $B_3N_3H_6$



34. Answer (D)

35. Answer (A)

Hint and Sol. for Q.Nos. 34 and 35

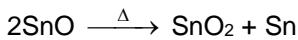
Hint and Sol. : M is Na



36. Answer (04)

Hint : $SnC_2O_4 \longrightarrow SnO + CO + CO_2$

Sol. :



$$n\text{-fac of } SnO = 1$$

37. Answer (08)

Hint and Sol. : Maximum prescribed concentration of Cu and Zn are 3 and 5 ppm respectively.

38. Answer (54)

Hint : $\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

Sol. : $P_1 = P_0 + \rho gh$

$$= 1 \times 10^5 + 10^3 \times 10 \times 80$$

$$= 9 \times 10^5 \text{ Pa} = 9 \text{ bar}$$

$$\frac{9 \times 4}{280} = \frac{1 \times V_2}{300}$$

$$V_2 = \left(\frac{36 \times 30}{28} \right) = \frac{270}{7} \text{ cm}^3$$

PART - III (MATHEMATICS)

39. Answer (A, B)

Hint : ∵ Roots does not lies in interval $[-1, 1]$ then if $a > 0$ then $f(-1) < 0$ and $f(1) < 0$

Sol. : Let $f(x) = ax^2 + bx + c$

and $f(-1) < 0$ and $f(1) < 0$

$\Rightarrow a - b + c < 0$ and $a + b + c < 0$

$\Rightarrow 1 - \frac{b}{a} + \frac{c}{a} < 0$ and $1 + \frac{b}{a} + \frac{c}{a} < 0$ if $a > 0$

$\Rightarrow 1 \pm \left| \frac{b}{a} \right| + \frac{c}{a} < 0$ if $a > 0$

For $a < 0$, $f(-1) > 0$ and $f(1) > 0$

$\Rightarrow a \pm b + c > 0$

$\Rightarrow 1 \pm \frac{b}{a} + \frac{c}{a} < 0$ for $a < 0$

$\therefore 1 \pm \left| \frac{b}{a} \right| + \frac{c}{a} < 0$ for $a < 0$

40. Answer (B, C, D)

Hint : The general term = T_{r+1}

$$= {}^{20}C_r \left(\sqrt[3]{5}\right)^{20-r} \left(7^{-\frac{1}{4}}\right)^r$$

$$\text{Sol. Here, } T_{r+1} = {}^{20}C_r 5^{\frac{20-r}{3}} \cdot 7^{-\frac{r}{4}}$$

The expansion contain rational terms for $r = 8$ and 20.

\therefore Two term is rational and rest 19 terms are irrational.

Sum of binomial coefficients = ${}^{20}C_0 + {}^{20}C_1 + \dots + {}^{20}C_{20} = 2^{20}$

The middle term is T_{11} which is irrational

41. Answer (A, B, D)

Hint : a, b, c are in A.P. then $2b = a + c$

Sol. : $3^{2\sin 2x-1}, 14, 3^{4-2\sin 2x}$ are in A.P.

$$\therefore 28 = 3^{2\sin 2x-1} + 3^{4-2\sin 2x}$$

This only possible if $\sin 2x = \frac{1}{2}$

$$\therefore x = \frac{n\pi}{2} + (-1)^n \frac{\pi}{12}, n \in I$$

The required A. P. is 1, 14, 27, 40..

\therefore Fifth term of A.P. = 53

Tenth term of A.P = $1 + (10 - 1) \cdot 13 = 118$

42. Answer (A, D)

Hint : $\lim_{x \rightarrow 0^+} f(x) = \lim_{h \rightarrow 0} f(0+h) = \lim_{h \rightarrow 0} f(h)$

$$\text{Sol. : } \lim_{x \rightarrow 0^+} \frac{\sqrt{1-\cos(2mx)}}{\sin(nx)} = \lim_{h \rightarrow 0} \frac{\sqrt{1-\cos(2mh)}}{\sin(nh)}$$

$$= \lim_{h \rightarrow 0} \frac{\sqrt{2}|\sin(mh)|}{\sin(nh)} = \lim_{h \rightarrow 0} \frac{\sqrt{2}|m|}{n} \cdot \frac{\left|\frac{\sin mh}{mh}\right|}{\frac{\sin(nh)}{nh}}$$

$$= \frac{\sqrt{2}|m|}{n} = -\frac{\sqrt{2}|m|}{|n|} \quad \{ \because m > 0, n < 0 \}$$

43. Answer (B, C)

Hint : Arrange data in increasing order

Sol. : We have 3, 3, 4, 5, 7, 9, 10, 12, 18, 19, 21

$$\text{Median} = \left(\frac{11+1}{2}\right)^{\text{th}}$$

or 6th observation = 9 = M

$$\therefore \sum_{i=1}^{11} |x_i - M| = 58$$

$$\text{M.D. (M)} = \frac{1}{11} \cdot 58 = 5.27$$

44. Answer (A, D)

Hint : Equation of circle touching both axes and of given radius r is $(x \pm r)^2 + (y \pm r)^2 = r^2$

Sol. : \because Point (3, -6) lies in fourth quadrant, hence circle must lie in fourth quadrant and centre will be (r, -r).

\therefore Equation of circle is $(x - r)^2 + (y + r)^2 = r^2$

$$x^2 + y^2 - 2rx + 2ry + r^2 = 0 \quad \dots (\text{i})$$

\therefore This circle passes through point (3, -6) hence

$$9 + 36 - 6r - 12r + r^2 = 0$$

$$\Rightarrow r^2 - 18r + 45 = 0$$

$$\therefore r = 15, 3.$$

\therefore Equation of circles are : $x^2 + y^2 - 6x + 6y + 9 = 0$ and $x^2 + y^2 - 30x + 30y + 225 = 0$

45. Answer (29.00)

Hint : Here L.H.S. lies in interval [-1, 1] and R.H.S. is always positive.

Sol. : Here R.H.S. ≥ 1 and L.H.S. ≤ 1

$$\therefore y = \frac{(4n+1)\pi}{2}, n \in I \text{ and } x = 1$$

$$\therefore 10e^{x-1} + 15\sin y + 4\cos^2 y$$

$$= 10 + 15 + 4 = 29$$

46. Answer (06.00)

Hint : Limiting value problems.

Sol. : Here $\sin y = 1$ and $\cos 2y = 1$ then

$$y = \frac{(4n+1)\pi}{2}, n \in I$$

$$\therefore y = \frac{-11\pi}{2}, \frac{-7\pi}{2}, \frac{-3\pi}{2}, \frac{\pi}{2}, \frac{5\pi}{2}, \frac{9\pi}{2}$$

47. Answer (18.00)

Hint : Selection of 2 teachers out of 7 teachers $= {}^7C_2 = 21$

Sol. : Total number of ways in which papers of 4 students can be checked by seven teachers $= {}^7C_4 = 35$. Number of ways in which 4 papers can be checked by exactly two teachers $= {}^7C_2 - 2 = 14$.

$$\therefore \text{Required probability} = P = \frac{21.14}{35} = \frac{6}{35}$$

$$\therefore 147 P = 18.$$

48. Answer (40.00)

Hint : Number of ways to select 4 teachers $= {}^7C_4 = 35$

Sol. : Number of ways that 4 papers are checked by four different teachers $= {}^7C_4 \times 4! = 35 \times 24$.

$$\therefore \text{Required probability} = Q = \frac{35 \times 24}{35} = \frac{120}{343}$$

$$\therefore \frac{343 Q}{3} = 40$$

49. Answer (50.00)

Hint : The given point P satisfy the locus of hyperbola.

Sol. : The coordinate of focii are $(1, 2)$ and $(5, 5)$.

$$\therefore 2ae = \sqrt{(5-1)^2 + (5-2)^2} = 5$$

and length of transverse axis $= 2a = 4$

$$\therefore \text{eccentricity } e = \frac{5}{4}$$

$$\therefore \frac{1}{e^2} + \frac{1}{e'^2} = 1$$

$$\Rightarrow \frac{1}{e^2} = 1 - \frac{16}{25} = \frac{9}{25}$$

$$\therefore e' = \frac{5}{3} \Rightarrow 30 e' = 50$$

50. Answer (07.00)

Hint : Locus of perpendicular tangents is director circle of the hyperbola.

$$\text{Sol.} : \because 2a = 4 \text{ and } e = \frac{5}{4}$$

$$\therefore e^2 = 1 + \frac{b^2}{a^2}$$

$$\Rightarrow \frac{25}{16} - 1 = \frac{b^2}{4}$$

$$\therefore b^2 = \frac{9}{4}$$

$$\text{Centre of hyperbola/circle} = \left(3, \frac{7}{2}\right)$$

Hint : Equation of director circle is

$$(x-3)^2 + \left(y - \frac{7}{2}\right)^2 = 4 - \frac{9}{4}$$

$$\therefore (x-3)^2 + \left(y - \frac{7}{2}\right)^2 = \frac{7}{4}$$

$$\therefore 4r^2 = 7.$$

51. Answer (D)

$$\text{Hint} : g(x) = \sqrt{2-|x|} + \sqrt{1+|x|} + \frac{3}{|x|}$$

Sol. : For domain, $x \neq 0$ and $2 - |x| \geq 0$

$$\therefore x \in [-2, 2].$$

$$\therefore \text{Domain} = [-2, 2] - \{0\}.$$

52. Answer (B)

$$\text{Hint} : h(x) = \sqrt{2-[x]} + \sqrt{1+[x]} + \frac{1}{[x]},$$

where $[]$ represent the greatest integer function.

$$\text{Sol.} : [x] \neq 0 \Rightarrow x \notin [0, 1] \quad \dots(i)$$

$$\text{and } 1 + [x] \geq 0 \Rightarrow [x] \geq -1$$

$$\Rightarrow x \in [-1, \infty) \quad \dots(ii)$$

and $2 - [x] \geq 0 \Rightarrow [x] \leq 2$

$$\therefore x \in (-\infty, 3) \quad \dots \text{(iii)}$$

From eq. (i), eq. (ii) and eq. (iii) we get :

$$x \in [-1, 0) \cup [1, 3)$$

53. Answer (D)

Hint : Algebraic distance of line $\bar{a}z + a\bar{z} + b = 0$ from point z_1 is equal to $\frac{\bar{a}z_1 + a\bar{z}_1 + b}{2|a|}$.

Sol. : Sum of all algebraic distances of line from

$$\text{roots of unity} = \sum_{r=0}^{n-1} \frac{\bar{a}\alpha^r + a\bar{\alpha}^r + b}{2|a|}$$

$$\begin{aligned} &= \frac{1}{2|a|} \left\{ \bar{a} \sum_{r=0}^{n-1} \alpha^r + a \sum_{r=0}^{n-1} \bar{\alpha}^r + bn \right\} \\ &= \frac{b.n}{2|a|} \end{aligned}$$

54. Answer (B)

$$\text{Hint: } \because (x-1)(x-\alpha)(x-\alpha^2)\dots$$

$$(x-\alpha^{n-1}) = (x^n - 1)$$

On taking log of both sides and differentiating w.r.t. x we get :

$$\frac{1}{x-1} + \frac{1}{x-\alpha} + \frac{1}{x-\alpha^2} + \dots + \frac{1}{x-\alpha^{n-1}} = \frac{nx^{n-1}}{x^n - 1}$$

$$= \frac{n}{\omega-1}$$

$$\text{Sol. : } \frac{1}{x-1} + \frac{1}{x-\alpha} + \frac{1}{x-\alpha^2} + \dots + \frac{1}{x-\alpha^{n-1}}$$

$$= \frac{nx^{n-1}}{x^n - 1} \text{ on replacing } x \text{ by } \omega \text{ we get}$$

$$\frac{1}{\omega-1} + \frac{1}{\omega-\alpha} + \frac{1}{\omega-\alpha^2} + \dots + \frac{1}{\omega-\alpha^{n-1}}$$

$$= \frac{n}{\omega-1}$$

$$\therefore n = 3K + 1$$

Then $\omega^{n-1} = 1$ and $\omega^n = \omega$.

55. Answer (36)

Hint : $10^{500} = 2^{500} \cdot 5^{500}$ and $10^{495} = 2^{495} \cdot 5^{495}$

Sol. : For required divisors the exponent of 2 and 5 may be 495, 496, 497, 498, 499 or 500.

\therefore Total number of divisors = $6 \times 6 = 36$

56. Answer (27)

Hint : $y = mx + c$ be a tangent to hyperbola

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} \text{ then } c^2 = a^2 m^2 - b^2$$

$$\text{Sol. : here } C^2 = \lambda^2 m^2 - (\lambda^3 + \lambda^2 + \lambda)^2$$

$$\therefore \lambda^2 m^2 - \lambda^2(\lambda^2 + \lambda + 1)^2 \geq 0$$

$$m^2 - \left\{ \left(\lambda + \frac{1}{2} \right)^2 + \frac{3}{4} \right\}^2 \geq 0$$

$$\Rightarrow m > \frac{3}{4}$$

$$\therefore [48m_{\min}^2] = 27$$

57. Answer (13)

Hint : sum of n AM's between a and b is equal to

$$n \left(\frac{a+b}{2} \right)$$

$$\text{Sol. : } \because 364 = n \left(\frac{7+49}{2} \right)$$

$$\therefore n = \frac{364}{28}$$

$$\therefore n = 13$$

