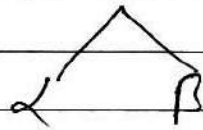


class - X<sup>th</sup>

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Solutions of Exercise 4,

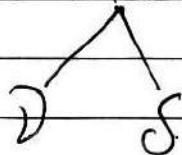
Sol<sup>n</sup> 1. (B)  $am^2 + bm + c$



$$\alpha + \beta = -b/a$$

$$\alpha\beta = c/a$$

$$a^3 m^2 + abc m + c^3$$



$$D + S = \frac{-abc}{a^3} = \frac{-bc}{a^2} = \frac{-b}{a} \times \frac{c}{a}$$

$$= (\alpha + \beta)\alpha\beta$$
$$= \alpha^2\beta + \alpha\beta^2$$

$$DS = \frac{c^3}{a^3} = \left(\frac{c}{a}\right)^3 = (\alpha\beta)^3$$
$$= \alpha^3\beta^3$$

Zeros are  $\alpha^2\beta$  and  $\alpha\beta^2$

Sol<sup>n</sup> 2. (C)  $\alpha + \beta = 2$

$$\alpha^4 + \beta^4 = 272$$

$$(-4)^4 + (2)^4 = 272$$

$$\alpha = -4$$

$$\beta = 2$$

$$k[m^2 - (\alpha + \beta)m + \alpha\beta] = 0$$

$$k[m^2 - (2)m + (-8)] = 0$$

$$m^2 - 2m - 8 = 0 \quad (\text{Required polynomial})$$

Sol<sup>n</sup> 3. (D)  $m^2 - pm + 36$

$$\begin{array}{c} \wedge \\ \alpha \quad \beta \end{array}$$

$$\alpha + \beta = p$$

$$\alpha\beta = 36$$

$$\alpha^2 + \beta^2 = 9$$

$$(\alpha + \beta)^2 - 2\alpha\beta = \alpha^2 + \beta^2$$

$$(p)^2 - 2(36) = 9$$

$$p^2 = 9 + 72$$

$$p^2 = 81$$

$$p = \pm 9$$

Sol<sup>n</sup> 4. (D)  $p(m) = km^3 - 5m^2 - 11m - 3$

Sum of zeroes = 2

$$\alpha + \beta + \gamma = -\frac{b}{a}$$

$$\frac{-(-5)}{k} = 2$$

$$\frac{5}{k} = 2$$

$$2k = 5$$

$$k = \frac{5}{2}$$

Sol<sup>n</sup> 5. (B)  $p(m) = m^2 - 27$

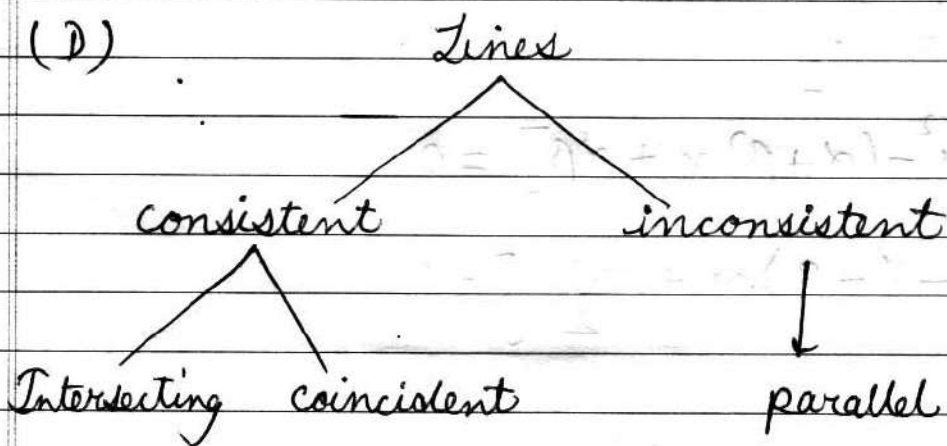
Zeros  $\rightarrow$

$$m^2 = 27$$

$$m = \pm \sqrt{27}$$

$$m = \pm 3\sqrt{3}$$

Sol<sup>n</sup> 6. (D)



Sol<sup>n</sup> 7. (A)  $3m + y = 1$

$$(2k-1)m + (k-1)y = -(2k+1)$$

$$\frac{3}{2k-1} = \frac{1}{k-1}$$

$$3k-3 = 2k-1$$

$$k = 2$$

Sol<sup>n</sup> 8. (C)  $m = 2 + \sqrt{3}$

$$m^2 = (2 + \sqrt{3})^2 \quad \text{--- (1)}$$

$$m^2 + \frac{1}{m^2}$$

$$= \left(\frac{1}{m}\right)^2 = \frac{1}{2 + \sqrt{3}} \times \frac{2 - \sqrt{3}}{2 - \sqrt{3}} = (2 - \sqrt{3})^2 \quad \text{--- (2)}$$

$$(2+\sqrt{3})^2 + (2-\sqrt{3})^2$$

$$4+3+4\sqrt{3}+4+3-4\sqrt{3}$$

$$= 14$$

Sol<sup>n</sup> 9. (C)  $\alpha + \beta = -3$   
 $\alpha\beta = \frac{-5}{2}$

$$k [m^2 - (\alpha + \beta)m + \alpha\beta] = 0$$

$$[m^2 - (-3)m + \frac{-5}{2}] = 0$$

$$2m^2 + 6m - 5 = 0$$

Sol<sup>n</sup> 10 (C)  $\sqrt{6-4m-m^2} = m+4$

$$(m+4)^2 = 6-4m-m^2$$

$$m^2 + 16 + 8m = 6 - 4m - m^2$$

$$2m^2 + 10 + 12m$$

$$m^2 + 5 + 6m$$

$$m^2 + 6m + 5 = 0$$

$$\text{No. of solutions} = \underline{\underline{2}}$$

Sol<sup>n</sup> 11. (B)  $a_1 + a_8 = 24$

$$a + a + 7d = 24$$

$$2a + 7d = 24 \quad \text{--- (1)}$$

$$a_4 + a_5 = ?$$

$$a + 3d + a + 4d = 2a + 7d$$

$$2a + 7d = 24 \quad (\text{from eq}^n \text{ ①})$$

24 Ans.

Sol<sup>n</sup> 12. (c)  $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \dots$

$$a = \sqrt{2}$$

$$d = \sqrt{2}$$

$$S_n = \frac{n}{2} [2a + (n-1)d]$$

$$= \frac{n}{2} [2\sqrt{2} + (n-1)\sqrt{2}]$$

$$= \frac{n}{2} [2\sqrt{2} + \sqrt{2}n - \sqrt{2}]$$

$$= \frac{n}{2} [\sqrt{2} + \sqrt{2}n]$$

$$= \frac{n}{2} \times \sqrt{2}(n+1)$$

$$= \frac{n(n+1)}{\sqrt{2}} \quad \underline{\text{Ans.}}$$

Sol<sup>n</sup> 13. (B)  $-11, -8, -5, \dots, 49$

$$a = 49$$

$$d = -3$$

$$a + 3d$$

$$49 + 3(-3) \Rightarrow 49 - 9 = 40 \quad \underline{\text{Ans}}$$

Sol<sup>n</sup> 14.(B) Let AP be 1, 2, 3, 4, 5.

$$m = 3$$

$$n = 5$$

$$S_n = 15$$

$$S_n = m \times n = 3 \times 5 = 15$$

Sol<sup>n</sup> 15.(B) 17, 23 - - - - - 497

$$a = 17$$

$$d = 6$$

$$a_n = a + (n-1)d$$

$$497 = 17 + (n-1)6$$

$$\frac{480}{6} = (n-1)$$

$$n-1 = 80$$

$$n = 81$$

Sol<sup>n</sup> 16.(A) 12, 15, - - - - - 99

$$a_n = a + (n-1)d$$

$$99 = 12 + (n-1)3$$

$$\frac{99-12}{3} = n-1$$

$$n-1 = 29$$

$$n = 30$$

Sol 7. <sup>(B)</sup> Area of  $\Delta = \frac{1}{2} |m_1(y_2 - y_3) + m_2(y_3 - y_1) + m_3(y_1 - y_2)| = 0$

$$\frac{1}{2} |m(y-1) + 0(1-0) + 1(0-y)| = 0$$

$$\frac{1}{2} |my - m + 0 + -y| = 0$$

$$\frac{my - m - y}{2} = 0$$

$$my - m - y = 0$$

$$m + y = my$$

lot

Sol<sup>n</sup> 18. (B) A(0, y)      B(6, 5)      C(-4, 3)

$$AB = AC$$

$$\sqrt{(6-0)^2 + (5-y)^2} = \sqrt{(-4-0)^2 + (3-y)^2}$$

$$\sqrt{36 + 25 + y^2 - 10y} = \sqrt{16 + 9 + y^2 - 6y}$$

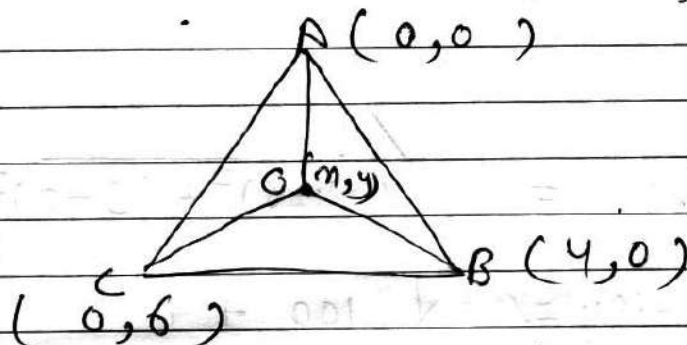
$$y^2 - 10y + 35 + 36 = y^2 - 6y + 25$$

$$-4y = -36$$

$$y = 9$$

The co-ordinates are (0, 9).

Sol<sup>n</sup> 19.



Let (m, y) be co-ordinates of circum-centre

$$GA = GB$$

$$\sqrt{(0-m)^2 + (0-y)^2} = \sqrt{(4-m)^2 + (0-y)^2}$$

$$\sqrt{m^2 + y^2} = \sqrt{16 + m^2 - 8m + y^2}$$

$$m^2 + y^2 = m^2 + y^2 - 8m + 16$$

$$8m = 16$$

$$m = 2$$



$$OB = OC$$

$$\sqrt{(4-m)^2 + (0-y)^2} = \sqrt{(0-m)^2 + (6-y)^2}$$

$$\sqrt{(4-2)^2 + (0-y)^2} = \sqrt{(0-2)^2 + (6-y)^2}$$

$$4 + y^2 = 4 + y^2 - 12y + 36$$

$$-12y = -36$$

$$y = 3$$

Hence, co-ordinates are  $(2, 3)$

Sol<sup>n</sup> 20.  $(k, 2k) \quad (3k, 3k) \quad (3, 1)$

$$\frac{1}{2} |m_1(y_2 - y_3) + m_2(y_3 - y_1) + m_3(y_1 - y_2)| = 0$$

$$\frac{1}{2} |k(3k - 1) + 3k(1 - 2k) + 3(2k - 3k)| = 0$$

$$\frac{1}{2} |3k^2 - k + 3k - 6k^2 + 6k - 9k| = 0$$

$$-3k^2 - k = 0$$

$$-3k^2 = 0$$

$$k^2 = 0$$

$$k = 0$$

$$\frac{1}{2} |-3k^2 - k| = 0$$

$$3k^2 + k = 0$$

$$k(3k + 1) = 0$$

$$k = -\frac{1}{3}$$

$$\text{Sol 1721} \quad x = a \sec \theta + b \tan \theta$$

$$y = a \tan \theta + b \sec \theta$$

$$x^2 = a^2 \sec^2 \theta + b^2 \tan^2 \theta + 2ab \sec \theta \tan \theta$$

$$y^2 = a^2 \tan^2 \theta + b^2 \sec^2 \theta + 2ab \sec \theta \tan \theta$$

$$x^2 - y^2 = a^2 \sec^2 \theta + b^2 \tan^2 \theta + 2ab \sec \theta \tan \theta \\ - a^2 \tan^2 \theta - b^2 \sec^2 \theta - 2ab \sec \theta \tan \theta$$

$$x^2 - y^2 = a^2 \sec^2 \theta - a^2 \tan^2 \theta + b^2 \tan^2 \theta - b^2 \sec^2 \theta$$

$$= a^2 [\sec^2 \theta - \tan^2 \theta] + b^2 [\tan^2 \theta - \sec^2 \theta]$$

$$= a^2 [1] + b^2 [-1]$$

$$= a^2 - b^2$$

(c) option is the answer.

$$\text{Sol 22} \quad a \cos \theta + b \sin \theta = 3 \quad \text{--- (1)}$$

Sq. both side

$$a \sin \theta - b \cos \theta = 4 \quad \text{--- (2)}$$

Sq. both side

$$a^2 \cos^2 \theta + b^2 \sin^2 \theta + 2ab \sin \theta \cos \theta = 9$$

$$a^2 \sin^2 \theta + b^2 \cos^2 \theta - 2ab \sin \theta \cos \theta = 16$$

$$+$$

## Answer Key with Solution

Q.26 → Ans. (d) → Related to chapter-01  
(Rancidity topic)

Q.27 → Ans. (a) → Related to chapter-01  
(Types of chemical reaction topic)

Q.28 → Ans. (c) → Related to ch-02 (Chlor-Alkali -  
process topic)

Q.29 → Ans. (a) → Related to ch-2 (PH scale topic)

Q.30 → Ans. (c) → Related to ch-2

Q.31 → Ans. (a) → Related to ch-3 (purification of metals)

Q.32 → Ans. (d) → Related to ch-3  
(Reaction of metals with water)

Q.33 → Ans. (d) → Related to ch-5 (Respiration topic)

Q.34 → Ans. (b) → Related to ch-5 (Nutrition topic)

Q.35 → Ans. (c) → Related to ch-5  
(Respiration in plants)

Q.36 → Ans. (c) → Related to ch-5  
Ans. (c) (Nutrition in animals)

Q.37 → Ans. (a) → Related to chapter - 08  
(Sex determination in animals)

Q.38 → Ans. (b) → Related to ch - 08  
(Sex determination in animals)

Q.39 → Ans. (b) → Related to chapter - 09  
(lens formula and magnification topic)

Q.40 → solution :- Ans (C)

Let (माना) :- Distance between mirror to object  
 $= x$

$\therefore v = -x$

magnification (m) =  $-\frac{v}{u}$

$\frac{1}{n} = \frac{-v}{-x} = \frac{v}{x}$

Now, by mirror formula

$\frac{1}{f} = \frac{1}{v} + \frac{1}{u} \Rightarrow \frac{1}{f} = \frac{1}{\left(\frac{x}{n}\right)} - \frac{1}{x}$

$\Rightarrow \frac{1}{f} = \left(\frac{n-1}{x}\right) \Rightarrow \frac{1}{f} = \left(\frac{n-1}{x}\right) \Rightarrow x = (n-1)f$

$\therefore x$  is object distance.  
So, Ans is (C)

Q.41) In Concave mirror Ans :- (D)  
(f) = -10 cm  
(u) = -20 cm

then by mirror formula :-

$$\frac{1}{f} = \frac{1}{u} + \frac{1}{v} \Rightarrow \frac{1}{f} = \frac{1}{u} - \frac{1}{20} \Rightarrow \frac{1}{-10} = \frac{1}{u} - \frac{1}{20}$$

$$\Rightarrow \frac{1}{-10} = \frac{1}{u} - \frac{1}{20} \Rightarrow \frac{1}{u} = -\frac{1}{10} + \frac{1}{20} \Rightarrow \frac{1}{u} = \frac{-2+1}{20}$$

$$\Rightarrow u = -20, \text{ Here } (u = v) \text{ So, Ans (d)}$$

Q.42 ::  $H = I^2 R t$       Ans! - A

OR

$$H = \frac{U^2 t}{R} \Rightarrow U^2 = \frac{HR}{t}$$

$$U = \sqrt{\frac{HR}{t}} = \sqrt{\frac{100 \times 4}{1}}$$

$$\Rightarrow U = \sqrt{400} = 20 \text{ Volt. So, Ans (a)}$$

Q.43 ::  $\text{Kwh} = \frac{\text{watt} \times \text{Hours} \times \text{days}}{1000}$

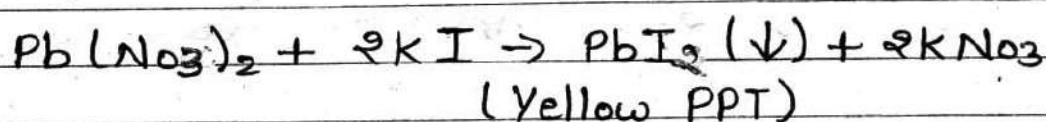
$$\Rightarrow \frac{400 \times 8 \times 30}{1000} = 96 \text{ Kwh} \quad (\text{option}) \rightarrow (a)$$

Total cost of 96 Kwh =  $96 \times 3 = ₹ 288$

Q.44 Ans - (c)  $\rightarrow$  Related to ch-10  
(Dependency of Resistance).

Q.45 → Ans. (b) → Related to chapter - 02  
Topic - (Importance of PH in our life)

Q.46 → Ans (b) → Related to chapter - 02



Q.47 → Ans. (b) → Related to ch - 02  
topic - PH strength of Acid, Base)

Q.48 → Ans - (b) → Related to ch - 03  
(Reactivity Series of metals)

Q.49 → Ans - (a) → Related to chapter - 05  
(Transportation system of Humans)

Q.50 → Ans (b) → Related to chapter - 05  
(Human digestive system)

Subject - English

Class - 10th

Answer Key

51. (D) appears (due to an adverb 'twice a month')
52. (D) has (due to singular subject in present perfect tense in Passive form)
53. (A) had (due to an adverb of 'last vacation')
54. (B) would come (due to an adverb of 'tomorrow' but in indirect speech)
55. (C) say (due to plural subject)
56. (B) leaves (To mention a fixed programme with time table)
57. (B) is (due to/when a plural noun is used as a collective noun/unit)
58. (B) are (Here at the beginning of a sentence in order to draw attention to something or to introduce something, it shows present, subject in plural)
59. (D) have (due to 'children' in present perfect tense in active voice before preposition)
60. (B) grows (due to 'the number of')
61. (A) make (Determiners 'have been used 'twice' so they are in plural)
62. (B) brings (If two subjects joined with 'and' express the feelings of one thing)
63. (A) The visitors will be shown the new building (by people) - (due to 'simple future' in Passive voice)
64. (B) By whom was the window pane broken? (due to 'simple past tense' in Passive voice)
65. (D) It is time for the lesson to be completed. (due to 'Passive voice with 'infinitive')
66. (B) A story was told to him by me. (due to 'passive voice' in simple past tense)
67. (D) What are you looking for?
68. (B) How many members are there in your family?
69. (B) Shan't I? (due to affirmative in simple future tense)
70. (B) don't they? (due to 'everybody' in simple present tense in affirmative sentence)

CLASS-10.

91. A

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 2         | 12        | 36        | 80        | 150       | 252       |
| $1^2+1^2$ | $2^2+2^2$ | $3^2+3^2$ | $4^2+4^2$ | $5^2+5^2$ | $6^2+6^2$ |

92. D.

|                      |   |                      |   |                      |   |                      |   |   |
|----------------------|---|----------------------|---|----------------------|---|----------------------|---|---|
| 210                  | , | 120                  | , | 60                   | , | 24                   | , | 6 |
| ⤵                    |   | ⤵                    |   | ⤵                    |   | ⤵                    |   |   |
| $\times \frac{4}{7}$ |   | $\times \frac{3}{6}$ |   | $\times \frac{2}{3}$ |   | $\times \frac{1}{4}$ |   |   |

93. B.

7②9 = you are (good)

②35 = he is (good)

65② = she is (good)

2 = good

5 = is

3 = he

94. C

• मधली  
 व्हेल → स्तनधारी  
 मगरमच्छ → खरीसृप

95. D

96. D

97. B

98. C

99. B

100. B