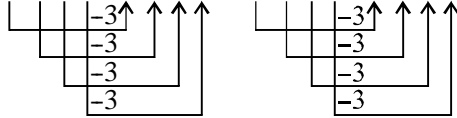


Combined Higher Secondary Level Exam Practice Set - 2 : Explanation

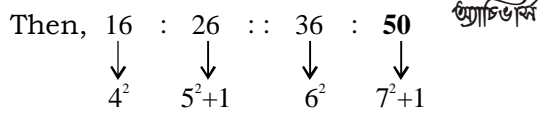
1. (d) 2. (b) 3. (c) 4. (c) 5. (c)
 6. (b) 7. (c) 8. (d) 9. (c) 10. (b)
 11. (c) 12. (a) 13. (a) 14. (b) 15. (d)
 16. (d) 17. (c) 18. (d) 19. (a) 20. (d)
 21. (a) 22. (c) 23. (b) 24. (a) 25. (d)

26. (a) Painter paints at canvas. Similarly, Sculptor carves the marble.

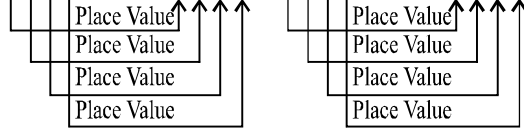
27. (c) D G L S : A D I P :: C F K R : Z C H O



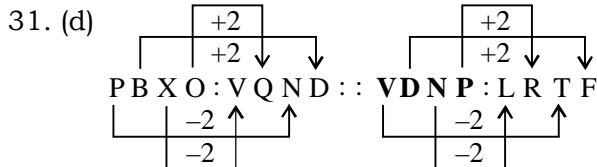
28. (a) Question is- 16 : 26 : 36 : ?



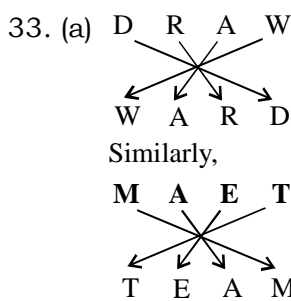
29. (b) CAGE : 3 1 7 5 :: HIDE : 8 9 4 5



30. (b) Moon moves around the sun. Similarly, Uranus moves around the sun.



32. (a) Portrico is the front portion of a building. Similarly, fortress is the front portion of fort.



34. (b) Silvenite is the ore of gold. Similarly, gypsum is the ore of calcium.

35. (b) Malaria affects, spleen. Similarly, goitre affects, throat.

36. (b) $2 \xrightarrow{2^2} 4 \xleftarrow{2^2} 2$
 $3 \xrightarrow{3^2} 9 \xleftarrow{3^2} 3$
 $4 \xrightarrow{4^2} 16 \xleftarrow{4^2} 4$

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Similarly,

$8 \xrightarrow{8^2} 64 \xleftarrow{8^2} 8$

37. (b)

38. (d) $25 + 15 = 40 \div 8 = 5$
 $65 + 25 = 90 \div 18 = 5$
 $45 + 15 = 60 \div 12 = 5$

39. (b) $\sqrt{64} + \sqrt{36} + \sqrt{49} = 21$

Similarly,

$\sqrt{121} + \sqrt{81} + \sqrt{100} = 30$

40. (b) $18 + 6 - 3 = 21$

$21 + 9 - 4 = 26$

$24 + 8 - 3 = 29$

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41. (a)

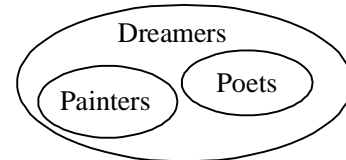
42. (b) **acb/bac/acb/bac/acb/bac**

43. (d) **abac/baca/abac/baca/abac/baca**

44. (c) $18 \quad 25 \quad 23 \quad 30 \quad 28$
 $\downarrow +7 \uparrow \quad \downarrow -2 \uparrow \quad \downarrow +7 \uparrow \quad \downarrow -2 \uparrow$

45. (d) $8 \quad 29 \quad 113 \quad 449 \quad 1793$
 $\downarrow \times 4 - 3 \uparrow \quad \downarrow \times 4 - 3 \uparrow \quad \downarrow \times 4 - 3 \uparrow \quad \downarrow \times 4 - 3 \uparrow$

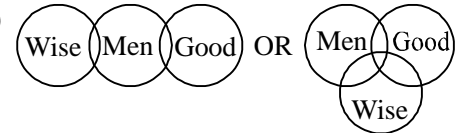
46. (a)



Conclusion - I - \times

II - \times

47. (b)



Both I and II follow.

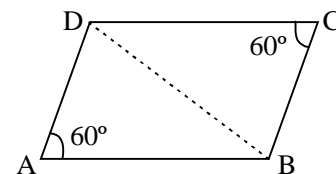
48. (d)

49. (d)

50. (d)

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51. (a)



In ABCD

$$\angle BAD = \angle DCB = 60^\circ$$

$$AB = AD = 15 \text{ cm } (\because \text{Rhombus})$$

In $\triangle ABD$

$$\angle BAD = 60^\circ$$

$$AB = AD$$

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$$\therefore \angle BDA = \angle ABD = \frac{180^\circ - \angle BAD}{2}$$

$$= \frac{180^\circ - 60^\circ}{2} = 60^\circ$$

$$\angle ABD = \angle BDA = \angle BAD = 60^\circ$$

So, $\triangle ABC$ is an equilateral triangle

So, $AB = BD = DA = 15 \text{ cm}$

52. (c) Originally volume = New volume

$$1 \text{ m}^3 = \text{Thickness} \times 5 \text{ hectare}$$

অ্যাচিভার্স

$$\text{Thickness} = \frac{1 \text{ m}^3}{50000 \text{ m}^2} = 0.00002 \text{ m}$$

53. (d) Number will be = $969x + 143$

$$= 57 \times 17x + 57 \times 2 + 29$$

$$= 57(17x + 2) + 29$$

So, if same number is divided by 57, then remainder will be 29

54. (b) In right angle isosceles triangle, angle will be 45° , 45° and 90° .

$$\sin A + \sin B + \sin C = \sin 45^\circ + \sin 45^\circ + \sin 90^\circ$$

$$= \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + 1$$

$$= \frac{1+1}{\sqrt{2}} + 1 = \frac{2}{\sqrt{2}} + 1$$

$$= 1 + \sqrt{2}$$

55. (b) $a = b \sec \theta + c$

$$\sec \theta = \frac{a-c}{b}$$

$$b = a \tan \theta + c$$

$$\tan \theta = \frac{b-c}{a}$$

$$\sec^2 \theta - \tan^2 \theta = 1$$

$$\left(\frac{a-c}{b}\right)^2 - \left(\frac{b-c}{a}\right)^2 = 1$$

$$\frac{(a-c)^2}{b^2} - \frac{(b-c)^2}{a^2}$$

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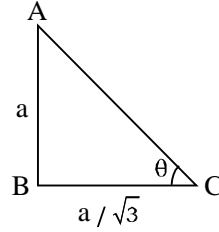
56. (c) $\log \tan 20^\circ + \log \tan 45^\circ + \log \tan 70^\circ$

$$= \log (\tan 20^\circ \cdot \tan 45^\circ \cdot \tan 70^\circ)$$

$$= \log (\tan 20^\circ \cdot \cot 20^\circ \cdot 1)$$

$$= \log 1 = 0$$

57. (d)



অ্যাচিভার্স

$$\tan \theta = \frac{a}{a/\sqrt{3}} = \sqrt{3}$$

$$\tan \theta = \tan 60^\circ = \tan \frac{\pi}{3}$$

$$\theta = \frac{\pi}{3}$$

58. (b) $\operatorname{cosec} \theta + \cot \theta = k$

$$\operatorname{cosec} \theta - \cot \theta = \frac{\operatorname{cosec}^2 \theta - \cot^2 \theta}{\operatorname{cosec} \theta + \cot \theta}$$

$$= \frac{1}{\operatorname{cosec} \theta + \cot \theta} = \frac{1}{k}$$

Adding equation (i) and (ii)

$$2 \operatorname{cosec} \theta = k + \frac{1}{k}$$

$$\frac{2}{\sin \theta} = \frac{k^2 + 1}{k}$$

$$\sin \theta = \frac{2k}{k^2 + 1}$$

অ্যাচিভার্স

59. (c) $x_1 = 1$, $x_2 = 3$ and $x_3 = k$

$$y_1 = 3$$
, $y_2 = 4$ and $y_3 = 1$

If A, B and C are collinear, so area of triangle is = 0.

$$x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2) = 0$$

$$1(4 - 1) + 3(1 - 3) + k(3 - 4) = 0$$

$$3 - 6 - k = 0$$

$$k = -3$$

60. (b) Amount = $9 \times$ Principal

$$A = P \left(1 + \frac{R}{100}\right)^2$$

$$9P = P \left(1 + \frac{R}{100}\right)^2$$

$$(3)^2 = \left(1 + \frac{R}{100}\right)^2$$

$$1 + \frac{R}{100} = 3$$

$$\frac{R}{100} = 2$$

$$R = 200\%$$

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61. (d) Let C.P. = ₹ 100
 M.P. = ₹ 130
 Discount = 40%
 $S.P = \left(130 \times \frac{60}{100}\right) = ₹78$
 Loss% = ₹(100 - 78) = ₹22

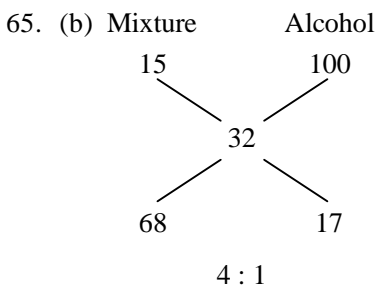
শ্রদ্ধাচিহ্ন

62. (c) Required average = $\frac{50 \times 38 - (45 + 55)}{48} = 37.5$

63. (b) Present population = 1200000

$$\begin{aligned} \text{Population after 2 years} &= 1200000 \times \left(1 + \frac{10}{100}\right)^2 \\ &= 1200000 \times \frac{121}{100} = 1452000 \end{aligned}$$

64. (b) $M_1 D_1 = M_2 D_2$
 $24 \times 40 = M_2 \times 32$
 $M_2 = \frac{24 \times 40}{32} = 30 \text{ men}$



শ্রদ্ধাচিহ্ন

If we have 4 ratio of mixture then alcohol added = 1
 If we have 400 ml of mixture then alcohol added = 100 ml

66. (c) The speed of first Car = 36 km/hr

$$= 36 \times \frac{5}{18} \text{ m/s} = 10 \text{ m/s}$$

Distance travel by first car in 15 sec
 = $10 \times 15 = 150 \text{ m}$

The speed of second car = 48 km/hr

$$= 48 \times \frac{5}{18} \text{ m/s} = \frac{40}{3} \text{ m/s}$$

Distance travel by second car in 15 sec

$$= \frac{40}{3} \times 15 = 200 \text{ m}$$

Distance between both car

$$= \sqrt{(150)^2 + (200)^2} = 250 \text{ m}$$

শ্রদ্ধাচিহ্ন

67. (a)

68. (a) Required percentage = $\frac{30}{25} \times 100 = 120\%$

69. (b) Required Ratio = $\frac{36}{15} = 2.4$

70. (c) Required Ratio = $30 : 10 = 3 : 1$

71. (c) Required percentage = $\frac{30-15}{30} \times 100 = 50\%$

72. (b) Required percentage = $\frac{22}{21} \times 100 = 104.76\%$

73. (d) Student enrolled in Swimming class

$$= \frac{11}{100} \times 3600 = 396$$

শ্রদ্ধাচিহ্ন

Student enrolled in Running class

$$= \frac{46.8^\circ}{360^\circ} \times 3600 = 468$$

Total number of students enrolled
 = $396 + 468 = 864$

74. (a) Students enrolled in Hockey

$$= \frac{54^\circ}{360^\circ} \times 3600 = 540$$

75. (a) Students enrolled in Tennis class

$$= \frac{64.8^\circ}{360^\circ} \times 3600 = 648$$

Students enrolled in Basket ball class

$$= \frac{21}{100} \times 3600 = 756$$

শ্রদ্ধাচিহ্ন

Student enrolled in Running class

$$= \frac{46.8^\circ}{360^\circ} \times 3600 = 468$$

Required ratio = $(648 + 756) : 468$
 = $1404 : 468 = 3 : 1$

76. (b) The port of Kolkata is a **reverine port** in the city of Kolkata, located around 126 miles from the sea. **It is the oldest operating port in India**, and was constructed by the British East India company, after the company received trading rights from the **Mughal** emperor **Aurangzeb**.

77. (a)

শ্রদ্ধাচিহ্ন

78. (a)

79. (b) Insectivorous plants grow in mineral poor soil or very wet areas where all the nutrients are washed from the soil regularly. Without these minerals that the plants can pull from the soil, they struggle to survive. So, insectivorous plants supplements their meager food making skills by trapping insects and dissolving them to absorb their essential minerals-**like nitrogen**.

80. (b) **Water gas** is a synthesis gas, containing carbon mono-oxide and hydrogen. It is a useful product but requires careful handling due to its flammability and the risk of **carbon monoxide poisoning**. The gas is made by passing **steam** over a red-hot carbon fuel such as **coke**.

$$\text{H}_2\text{O} + \text{C} \rightarrow \text{H}_2 + \text{CO}$$
অ্যাজিভিক্স
81. (b) Rajendra Prasad was not among the members of the Drafting Committee of Indian Constitution.
 The Drafting committee members were –
 → Dr. B.R. Ambedkar (Chairman)
 → K.M. Munshi (Ex-Home Minister, Bombay)
 → Alladi Krishnaswamy Iyer (Ex-Advocate General, Madras)
 → N. Gopalaswami Ayangar (Ex. Prime Minister (J & K) member of Nehru Cabinet)
 → BL Mitter (Ex-Advocate General, India)
 → MD. Saadullah (Ex-Chief Minister of Assam, Muslim League Member)
 → D.P. Khaitan (Lawyer) অ্যাজিভিক্স
82. (b) Primary storage, also known as main storage or memory, is the area in a computer in which data is stored for quick access by the computer's processor. The terms **random access memory (RAM) and memory are often as synonyms for primary or main storage**.
83. (d) Any carbon-containing greenhouse gas comprises "carbon footprint increasing factors". Reducing them (like CO₂ and CH₄) will reduce carbon footprint. অ্যাজিভিক্স
84. (d) অ্যাজিভিক্স
85. (d) The **Upanishads** are a collection of texts that contain some of the central philosophical concept of Hinduism, some of which are shared with Buddhism and Jainism. The Upanishads are the foundation of **Hindu Philosophical thoughts** and its diverse traditions.
86. (c) As per the article 350-A of the Constitution of India, it shall be the endeavour of every state to and of every local authority within the state to provide adequate facilities for instruction in mother-tongue at the primary stage of education to children belonging to linguistic minority groups. And the president may issue such directions to any state as he considers necessary or proper for securing the provision of such facilities.
87. (d) Sugar in honey is not a single species, but consists of three kinds of sugar. These are the fruit sugar (fructose), which has among the highest **41%**, grape sugar (glucose) which has about **34%** of ordinary sugar (sucrose) which is between 1 and 2%. The ratio of one type of sugar to other depends on the source, i.e., flower pasture, and to some extent on enzyme invertase, which breaks down regular sugar in grape and fruit. This enzyme is located in the flower from which the bees collect nectar, but it is also present in the bees' body. অ্যাজিভিক্স
88. (d) অ্যাজিভিক্স
89. (d) **Osmium** is the naturally densest occurring element, with a density of 22.5g/cm³.
90. (b) The Constitution of India, which made India a sovereign, democratic republic, was adopted on **November 26, 1949**, and it came into effect on **26, January, 1950**, which is celebrated as Republic Day.
91. (b) **Playing It My Way** is the autobiography of Former Indian Cricketer Sachin Tendulkar. It was launched on 5 November 2014 in Mumbai. It was authored by **Sachin Tendulkar** and **Boria Majumdar**. অ্যাজিভিক্স
92. (b) অ্যাজিভিক্স
93. (b) Oxides of Non-metals are acidic (including N and S) so, they comprise acid rain.
94. (a) 1. A The **Gita Govinda** is a work composed by the 12th-century poet, **Jayadeva**, born in either the village of **Jayadeva Kenduli** in **Bengal** or the village of **Kenduli Sasan** in **Odisha** are likely candidates though another Kenduli in **Mithila** is also a possibility. It describes the relationship between **Krishna** and the **gopis** (female cow herders) of **Vrindavana**, and in particular one gopi named **Radha**. The Gita Govinda is organized into twelve chapters. Each chapter is further sub-divided into twenty four divisions called Prabandhas. The prabandhas contain couplets grouped into eights, called **Ashtapadis**. It is mentioned that **Radha** is greater than **Krishna**. The text also elaborates the eight moods of Heroine, the **Ashta Nayika**, which has been an inspiration for many compositions and choreographic works in **Indian classical dances**. অ্যাজিভিক্স
2. The Yogasastra and its voluminous auto-commentary, the Svopajnavrtti, is the most comprehensive treatise on Svetambara Jainism. Written in the twelfth century by the polymath Hemachandra, it was instrumental in the survival and growth of Jainism in India as well as the spreading of Sanskrit culture within Jaina circles. It is a

systematic presentation of a set of ideas and practices originally belonging to the Svetambara canonical scriptures and traditions molded into a coherent whole with the help of a long row of scholastic thinkers.

3. Ramanuja (traditionally, 1017-1137 CE) was a Hindu theologian, philosopher, and scriptural exegete, born in a Tamil family in the village of Sriperumbudur, Tamil Nadu. He is also known as Sri Ramanujacharya, Udayavar, Ethirajar (Yatiraja), Emberumannar and Lakshmana Muni. He is seen by Sir Vaishnavism as the most important acharya (teacher) of their tradition who followed Nathamuni and Yamunachary, and by Hindus in general as the leading expounder of Vishishtadvaita, one of the classical interpretations of the dominant Vedanta school of Vedic philosophy. Ramanuja completed his most important work, the Sribhasya in 1155-56.

ଅଧ୍ୟାପକ

4. Siddhanta Siromani (Sanskrit for “Crown of treatises”) is the major treatise of Indian mathematician Bhaskara II. He wrote the Siddhanta Siromani in 1150 when he was 36 years old. The work is composed in Sanskrit Language in 1450 verses.

95. (b) Acetic Acid is found in vinegar. The acetic Acid is produced by the fermentation of ethanol by acetic acid bacteria.

96. (d)

ଅଧ୍ୟାପକ

97. (c) **Trusteeship** is a socio-economic philosophy that was propounded by **Mahatma Gandhi**. It provides a means by which the wealthy people would be the trustees of trusts that looked after the welfare of the people in general.

98. (b)

99. (b) **Liver** does not release digestive juices.

100. (b) Inverter converts **DC to AC**.

