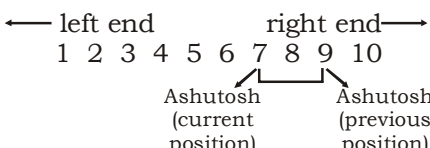




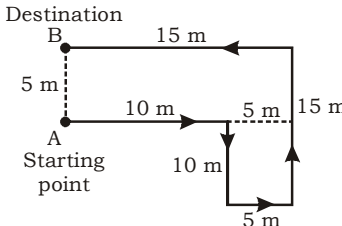
25. (C)  $934 - 678 = 256$   
 26. (D) 8  
 27. (A) Consider  $A = 1, B = 2 \dots, Z = 26$   
 We have PRATAP =  $16 - 18 - 1 - 20 - 1 - 16$   
 $= 1618120116$   
 So, NAVIN =  $14 - 1 - 22 - 9 - 14$   
 $= 14122914$   
 28. (C) A nib is fitted in the pen to write with it. But a nib is called needle. So, a needle will be fitted in the pen.

29. (B) 

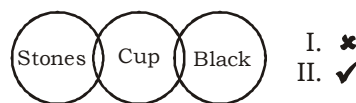
So, option (B) is the right answer.

30. (B) The pattern is:  $+20.5, +22.5, +24.5, +26.5$   
 So, Required number =  $138 + 24.5 = 162.5$   
 31. (A) The pattern is:  
 $\times 3 - 1, \times 3 - 2, \times 3 - 3, \times 3 - 4, \times 3 - 5$   
 So, required number =  $185 \times 3 - 5 = 550$   
 32. (B) The pattern is:  
 $+1, +(1 + 2), +(1 + 2 + 3), +(1 + 2 + 3 + 4),$   
 $+(1 + 2 + 3 + 4 + 5).$   
 So, required number =  $15 + 10 = 25$   
 33. (A) In terms of height, we have the following sequence:  $Q < P, R < P, T < S, S < Q.$   
 Now the sequence becomes  
 (i)  $T < S < Q < R < P$   
 (ii)  $T < S < R < Q < P$   
 In both the sequences, we can observe that P is the tallest.  
 34. (B) A is the brother of F, who is the daughter of D. So, we can say that A is the son of D. P is the brother of D. So, it is clear that P is the uncle of A.  
 35. (C) After interchanging the signs, we have  
 $1 \times 9 - 3 \div 1 \div 3 + 1 = 1 \times 9 - 3 \div 3 + 1$   
 $= 1 \times 9 - 1 + 1$   
 $= 9 - 1 + 1 = 9$

36. (C)  
 37. (D) 15

38. (A)   
 Required distance = 5 m.

39. (A) Only conclusion II follows.

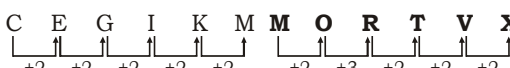


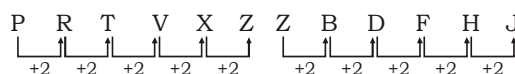
40. (A) Let the age of father and son be  $x$  and  $y$  respectively.  
 $x - y = y \Rightarrow x = 2y$   
 now,  $x = 36$   
 $\Rightarrow 2y = 36$   
 $\Rightarrow y = 18$   
 So, age of son 5 years ago =  $18 - 5 = 13$  yrs

41. (B) c e ac c/ aa b aa/ b bc b b/cc  
 42. (C) b a b b b/ b a b bb/ b a bb b/ b

43. (C) 

Word	A	R	D	E	N	T
Code	5	4	3	6	2	1

44. (B) 



45. (D) Total no. of routes =  $4 \times 3 \times 2 = 24$   
 46. (C)  
 47. (C)  
 48. (C)  
 49. (B)  
 50. (B)  
 51. (D) Uttarakhand movement is termed to the events of statehood activism within the state Uttar Pradesh which ultimately resulted in a separate state Uttarakhand of the Republic of India. Uttarakhand became a separate state of Uttar Pradesh on **November 9, 2000**.  
 52. (D) The Union Government has recently constituted Dr. Ashok Lahri committee to interact with the trade and industry on the imposition of Central Excise Duty on jewellery.  
 54. (C) The Hazratbal is a Muslim shrine in Srinagar, Jammu & Kashmir. It contains a relic, the Moi-e-Muqqadas. It is believed by many Muslims of Kashmir that hair of the Holy Prophet Muhammad has been preserved. The shrine is situated on the left bank of the Dal Lake, Srinagar and is considered to be Kashmir's holiest Muslim shrine.  
 55. (A) The frog excretes urea thus, is a ureotelic animal. It is carried by blood into the kidney where it is separated and excreted.

56. (B) Master Dinanath Mangeshkar Award was instituted in 1999 in memory of Dinanath Mangeshkar, father of Lata Mangeshkar. Since then it is awarded annually to persons for their outstanding contributions to music and movies. The awards carries monetary award of Rs 101001, memento and citation. Dinanath Mangeshkar was born on December 29, 1900 and died on April 24, 1942. The award ceremony is held annually on 23<sup>rd</sup> or 24<sup>th</sup> April. Actors Jeetendra and Ranveer Singh along with filmmaker Sanjay Leela Bhansali received the Master Dinanath Mangeshkar Awards in Mumbai on April 23.
57. (B) The Nobel Prize is widely regarded as the most prestigious award available in the fields of literature, medicine, physics, chemistry, peace, and economics.
59. (D) **Discovery                      Scientist                      Year**  
          Diode Bulb                      Sir J.S. Fleming                      1904  
          Triode Bulb                      Lee de Forest                      1906  
          Radioactivity                      Henry Becquerel                      1896  
          Law of floatation                      Archimedes                      1827
60. (C) Since 1947, the Indian economy has been premised on the concept of planning. This has been carried through the Five-Year Plans, developed, executed, and monitored by the Planning Commission (NITI Aayog after 2014). With the Prime Minister as the ex-officio Chairman, the commission has a nominated Deputy Chairman, who holds the rank of a Cabinet Minister. Revised versions of the formula have been used since then to determine the allocation of central assistance for state plans. The new government led by Narendra Modi, elected in 2014, has announced the dissolution of the Planning Commission, and its replacement by a think tank called the NITI Aayog (an acronym for National Institution for Transforming India). National Development Council finally approves the draft of five year plan.
61. (B) Bhimsen Gururaj Joshi, (4 February 1922–24 January 2011) was an Indian vocalist from Karnataka in the Hindustani classical tradition. He is known for the "Khayal" form of singing, as well as for his popular renditions of devotional music Bhajans and Abhangs.  
 In 1998, he was awarded the Sangeet Natak Akademi Fellowship, the highest honour conferred by Sangeet Natak Akademi, India's National Academy for Music, Dance and Drama. Subsequently, he also received the Bharat Ratna, India's highest civilian honour, in 2009.
62. (B) On April 18, 1853, the first Indian train popularly called Aag Gadi was steamed off from Bombay to Thane. The train was drawn by three engines named "Sahib", "Sindh" and "Sultan" and it covered the 34 km distance in 57 minutes.
64. (B) The clitellum is a thickened glandular and non-segmented section of the body wall near the head in earthworms and leeches, that secretes a viscid sac in which the eggs are deposited. It is present about 2 cm (0.79 in) behind the anterior end of the body (around the 14th, 15th and 16th segments).
66. (D) Born in Patara, a land that is part of present-day Turkey, St. Nicholas was a Christian bishop who helped the needy. After his death, the legend of his gift-giving grew. St. Nicholas transformed into the legendary character called Santa Claus, who brings Christmas presents to children around the world.
67. (D) Clip art, (in the graphic arts,) is a collection of pre-made images or pictures used to illustrate any medium. Today, clip art is used extensively in both personal and commercial projects.
68. (C) Ellora is an archaeological site 29 km (18 mile) north-west of the city of Aurangabad in Maharashtra. It was built by the Rashtrakuta dynasty (Brahmanical & Buddhist group of caves) and Yadav (Jain group of caves). It is well known for its monumental caves, Ellora is an UNESCO World Heritage Site and also forms one of major tourist attraction in Marathwada region of Maharashtra.
69. (D) Satyendranath Tagore was the first Indian to join the Indian Civil Service. He was an author, song composer, linguist and he also made a significant contribution towards the emancipation of women in Indian society during the British Raj.
70. (B) Kublai Khan was the fifth Khagan (Great Khan) of the Mongol Empire, reigning from 1260 to 1294. Although it was only nominally due to the division of the empire. He also founded the Yuan dynasty in China as a conquest dynasty in 1271, and ruled as the first Yuan emperor until his death in 1294. The capital city 'Daydo' was established by him in Beijing. By 1279, the Yuan forces had overcome the last resistance of the Southern Song dynasty, and Kublai became the first non-native Emperor to conquer all of China.

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|--|---|
| <p>71. (C) The cerebral hemispheres (the cerebrum) form the largest part of the human brain and are situated above other brain structures. They are covered with a cortical layer (the cerebral cortex) which has a convoluted topography.</p> <p>72. (C) Hansen's disease (also known as leprosy) is a long-lasting infection caused by bacteria. The disease was once feared as a highly contagious and devastating disease. Now, however, the disease is very rare and easily treated. Early diagnosis and treatment usually prevent disability related to the disease.</p> <p>74. (C) The Bardoli Satyagraha of 1928, in the state of Gujarat, India during the period of the British Raj, was a major episode of civil disobedience and revolt in the Indian Independence Movement. Sardar Vallabh Bhai Patel played an important role and was the leader in Bardoli Satyagraha.</p> <p>75. (C) The Gram-negative bacterium <i>Yersinia pestis</i> is the causative agent of the systemic invasive infectious disease classically referred to as plague, and has been responsible for three human pandemics: the Justinian plague (sixth to eighth centuries), the Black Death (fourteenth to nineteenth centuries) and modern plague (nineteenth century to the present day).</p> <p>77. (D) The National Capital Region (NCR) is the designation for the conurbation of metropolitan area in India. It encompasses the entire National Capital Territory of Delhi, including New Delhi and urban areas surrounding it in neighboring states of Haryana, Uttar Pradesh and Rajasthan.</p> <p>78. (B) The rights and privileges for the betterment of women are: right to equality in law [Article 14], right to social equality [Article 15], right to social equality in employment [Article 16] right to adequate means of livelihood [Article 39 (a)], right to equal pay for equal work [Article 39 (d)], right that the health and strength of workers both men and women are not abused [Article 39 (e)], right to just and humane conditions of work and <b>maternity relief [Article 42]</b>, and right to improvement in employment opportunities and conditions of the working women [Article 46].</p> | <p>80. (A) Morarji Desai, the author of "A Minister and his Responsibilities" was an Indian independence activist and the Prime Minister of India from 1977 to 1979. He was also the first Prime Minister to head India's first non-Congress Government.</p> <p>81. (B) Sharana Basaveshwara Temple is a shrine at Kalburgi (Gulbarga), an ancient town in the north-eastern part of Karnataka. The temple is dedicated to an eminent Hindu religious teacher and philosopher, Shri Sharana Basaveshwara.</p> <p>82. (D) World Malaria Day (WMD) is an international observance commemorated every year on 25 April and recognizes global efforts to control malaria. Globally, 3.3 billion people in 106 countries are at risk of malaria.</p> <p>83. (D) In keeping with the RM Lodha panel's proposals to the Supreme Court on the restructuring of the Board of Control for Cricket in India, the BCCI appointed media veteran Rahul Johri as its first Chief Executive Officer. In January this year, a panel headed by former Chief Justice of India RM Lodha, suggested that the BCCI must be run professionally under a CEO. The panel recommended a cooling off period between successive terms for top officials and suggested that the ministers and government servants cannot occupy BCCI posts.</p> <p>84. (A) India will be hosting the 2018 Commonwealth Judo Championships in Jaipur, besides organising the Asian Cadet and Asian Junior Judo Championships in September in Kerala this year. The Commonwealth Judo Championships was allotted to India, by the Commonwealth Judo Congress held on April 23<sup>rd</sup> at Port Elizabeth, South Africa.</p> <p>86. (D) Anita Nair is the author of the novel "Alphabet Soup for Lovers". Some of her other novels include "The Better Man, Ladies Coupe, Mistress, Lessons in Forgetting, Cut Like Wound and Idris". She has also published a collection of poems titled Malabar Mind, a collection of essays titled Good night &amp; God Bless and also five books for children. She has written two plays and the screenplay for the movie adaptation of her novel Lessons in Forgetting, which was part of the Indian Panorama at IFFI 2012 and won a National Film Award in 2013.</p> |
|--|---|



88. (A) A berry fruit is produced from the ovary of a single flower in which the outer layer of the ovary wall develops into an edible fleshy portion (botanically the pericarp). The definition includes many fruits that are commonly known as berries, such as grapes, tomatoes, cucumbers, eggplants (aubergines) and bananas.
90. (D) Nephridia of earthworm - excretory organs  
Nematoblasts of hydra - offensive organs  
Tracheae of insects - respiratory organs  
Flame cells of planaria - excretory organs  
Gills of prawn - respiratory organs
91. (D) The coefficient of friction (denoted by  $\mu$ ) does not have any unit as it is dimensionless.
92. (C) The Comptroller and Auditor-General shall hold office for a term of six years from the date on which he assumes such office, provided that where he attains the age of sixty-five years before the expiry of the said term of six years, he shall vacate such office on the date on which he attains.
93. (B) Venus is sometimes called Earth's twin because Venus and Earth are of almost the same size, have about the same mass (they weigh about the same), and have a very similar composition (are made of the same material). They are also neighbouring planets.
94. (B) The World Health Organization is a specialized agency of the United Nations that is concerned with international public health. It was established on 7<sup>th</sup> April 1948, headquartered in Geneva, Switzerland. The WHO is a member of the United Nations Development Group. Its predecessor, the Health Organization, was an agency of the League of Nations.
97. (A) Many children in our country suffer from malnutrition. Protein deficiency disease known as Kwashiorkor. This can be prevented by giving food rich in protein, e.g. milk, butter, meat and egg.
100. (B) Vikram Sarabhai Space Centre is located in Thiruvananthapuram, in Kerala. The centre had its beginnings as the Thumba Equatorial Rocket Launching Station (TERLS) in 1962. It was renamed in honour of Dr. Vikram Sarabhai, often regarded as the father of the Indian space programme.
101. (A) The candidate at second place got  
=  $(100 - (55 + 5))$   
= 40% votes  
Difference between winner and second candidate at second place  
=  $(55 - 40) = 15\%$   
ATQ,  
15%  $\rightarrow$  9000  
 $100\% \rightarrow \frac{100}{15} \times 9000 = 60,000$
102. (B) Let no. of men be  $x$ .  
According to the given data, we have  
 $\frac{46575}{48 \times 45} \times 2 = \frac{17250}{16 \times x}$   
[As daily wages of man is double of that of woman]  
 $\Rightarrow x = \frac{17250 \times 48 \times 45}{46575 \times 2 \times 16} = 25$  men
103. (C) Let total salary = 1300  
Expenditure = 800  
saving = 500  
Expenditure on food =  $\frac{20}{100} \times 800 = ₹ 160$   
expenditure on clothes =  $\frac{40}{100} \times 800 = ₹ 320$   
Money deposited in bank =  $\frac{60}{100} \times 500 = ₹ 300$   
 $\therefore$  Required percentage  
=  $\frac{\text{Money spent on clothes}}{\text{Amount deposited in bank}} \times 100$   
=  $\frac{320}{300} \times 100 = \frac{320}{3} = 106\frac{2}{3}\%$
104. (A) The given expression  
 $= \frac{\frac{1}{3} \times 3 \times \frac{1}{3}}{\frac{1}{3} \div \left(\frac{1}{3} \times \frac{1}{3}\right)} - \frac{1}{9}$   
 $= \frac{\frac{1}{3}}{\frac{1}{3} \div \frac{1}{9}} - \frac{1}{9} = \frac{\frac{1}{3}}{\frac{1}{3} \times 9} - \frac{1}{9}$   
 $= \frac{1}{3} - \frac{1}{9} = \frac{1}{9} - \frac{1}{9} = 0$



# K D Campus Pvt. Ltd

2007, OUTRAM LINES, 1ST FLOOR, OPPOSITE MUKHERJEE NAGAR POLICE STATION, DELHI-110009

105. (A) C.P of shopkeeper = ₹  $\frac{20}{25}$

S.P of shopkeeper = ₹  $\frac{25}{20}$

$$\therefore \text{Profit \%} = \frac{\left(\frac{25}{20} - \frac{20}{25}\right)}{\frac{20}{25}} \times 100$$

$$= \frac{125 - 80}{100} \times 100 \times \frac{25}{20}$$

$$= \frac{45}{100} \times 100 \times \frac{25}{20} = 56\frac{1}{4}\%$$

106. (A) Let the speed of stream be  $x$  km/hr  
ATQ,

$$\frac{72}{9+x} + \frac{72}{9-x} = 18$$

On solving,  $x = 3$  km/hr

107. (C) Cost price of D

$$= 4000 \times \frac{90}{100} \times \frac{110}{100} \times \frac{120}{100} = ₹ 4752$$

$\therefore$  Required difference  
= 4752 - 4000 = ₹ 752

108. (C) Let the amount invested at the rate of 6% =  $x$   
ATQ,

$$(10000 - x) \times \frac{5}{100} - \frac{x \times 6}{100} = 76.50$$

$$\Rightarrow 500 - \frac{5x}{100} - \frac{6x}{100} = 76.50$$

$$\Rightarrow \frac{11x}{100} = 423.50$$

$$x = ₹ 3850$$

Hence the amount invested at 6% = ₹ 3850

109. (B) We have the formula as-

$$\frac{(2n - 4) \times 90}{n} = \frac{(2 \times 8 - 4) \times 90}{8}$$

$$= \frac{1080}{8} = 135^\circ$$

110. (A) Area of circle (A) =  $\pi r^2$

$$r = \sqrt{\frac{A}{\pi}}$$

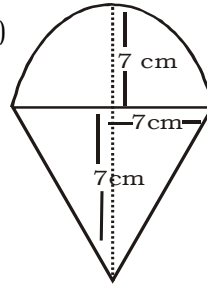
ATQ,

$$3 \times \text{side of triangle} = 2\pi \times \sqrt{\frac{A}{\pi}}$$

$$\text{Side of triangle} = \frac{2\sqrt{\pi A}}{3}$$

$$\begin{aligned} \text{Area of triangle} &= \frac{\sqrt{3}}{4} \times \left(\frac{2\sqrt{\pi A}}{3}\right)^2 \\ &= \frac{\pi\sqrt{3}A}{9} \text{ cm}^2 \end{aligned}$$

111. (A)



Height of hemispherical part  
= 7 cm = radius of hemispherical part  
ATQ,

Radius of hemispherical part = height of the  
cone  
= 7 cm

$\therefore$  Volume of ice cream = Volume of cone  
+ hemispherical part

$$= \frac{1}{3} \pi r^2 h + \frac{2}{3} \pi r^3$$

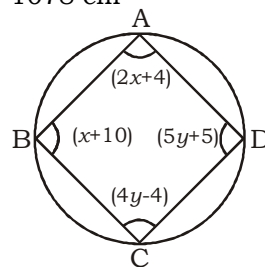
$$= \frac{1}{3} \pi r^2 (h + 2r)$$

$$= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 (7 + 2 \times 7)$$

$$= \frac{22 \times 7}{3} \times 21 = 22 \times 7 \times 7$$

$$= 1078 \text{ cm}^3$$

112. (D)



$$\angle B + \angle D = 180^\circ$$

$$\angle A + \angle C = 180^\circ \text{ and}$$

$$\Rightarrow x + 10 + 5y + 5 = 180^\circ$$

$$\Rightarrow x + 5y = 165 \quad \dots(i)$$

$$2x + 4 + 4y - 4 = 180^\circ$$

$$\Rightarrow x + 2y = 90^\circ \quad \dots(ii)$$

On solving (i) and (ii),

$$x = 40^\circ \text{ and } y = 25^\circ$$

$$\text{So, } x + y = 40^\circ + 25^\circ = 65^\circ$$

113. (B) A's distance : B's distance : C's distance  
 $1000 : (1000 - 50) : (1000 - 69)$   
 $= 1000 : 950 : 931$   
 i.e. B's distance : C's distance  
 $= 950 : 931$

$$\begin{array}{c} \text{-----} \\ \text{19 m} \end{array}$$

i.e. in a race of 950 m, B can allow C a start of 19 m

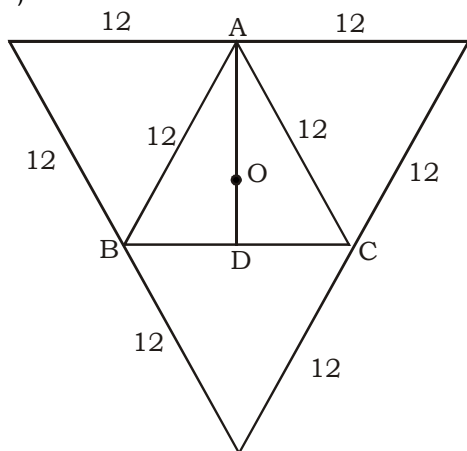
∴ in a race of 1000 m, B can allow C a start

of  $\frac{19}{950} \times 1000 = 20$  m

114. (C)  $\frac{(4x^3 - x)}{(2x+1)(6x-3)}$   
 $= \frac{x(4x^2 - 1)}{(2x+1) \times 3(2x-1)} = \frac{x \times (2x-1)(2x+1)}{3 \times (2x+1)(2x-1)}$

$$= \frac{x}{3} = \frac{9999}{3} = 3333$$

115. (B)



Area of equilateral triangle

$$= \frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times (12)^2 = \frac{144\sqrt{3}}{4}$$

Now, the area of a regular tetrahedron

$$= 4 \times \frac{144}{4} \times \sqrt{3} = 144\sqrt{3} \text{ cm}^2$$

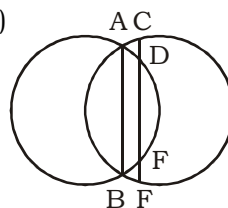
116. (C)  $x + \frac{1}{2x} = 2$

$$\text{or } 2x + 2 \times \frac{1}{2x} = 2 \times 2$$

$$\Rightarrow 2x + \frac{1}{x} = 4$$

$$\begin{aligned} \Rightarrow 8x^3 + \frac{1}{x^3} &= 4^3 - 3 \times 2x \times \frac{1}{x} \times 4 \\ &= 64 - 24 \\ &= 40 \end{aligned}$$

117. (C)



$$CD = EF = 4.5 \text{ Cm}$$

118. (C) Minimum value of  $4 \sec^2 \theta + 9 \operatorname{cosec}^2 \theta$

$$\begin{aligned} &= (\sqrt{4} + \sqrt{9})^2 \\ &= (5)^2 \\ &= 25 \end{aligned}$$

119. (A)  $2x + 3y = 29$  and  $y = x + 3$

$$\text{Now, } 2x + 3y = 29$$

$$\Rightarrow 2x + 3(x + 3) = 29 \quad [\text{Put the value of } y]$$

$$\Rightarrow 2x + 3x + 9 = 29$$

$$\Rightarrow 5x = 20$$

$$\Rightarrow x = 4$$

120. (C) ATQ,

$$A : B : C$$

$$\text{Days} \rightarrow x + 2 : x + 8 : x$$

Now from question condition,

$$\frac{1}{x+2} + \frac{1}{x+8} = \frac{1}{x}$$

after solving  $x = 4$

Time taken by B to complete the work

$$= (4 + 8)$$

$$= 12 \text{ days}$$

121. (B) Here, 280 is a multiple of 35.

∴ Required remainder

$$= \text{Remainder obtained on dividing 115 by } 35 = 10$$

122. (B) Average speed =  $\frac{\text{Total distance}}{\text{Total time}}$

$$= \frac{24 + 24 + 24}{\frac{24}{6} + \frac{24}{8} + \frac{24}{12}} = \frac{72}{4 + 3 + 2} = 8 \text{ km/hr}$$

123. (A) Let C.P of article = 100 unit

∴ Total profit

$$= 100 \times \frac{4}{5} \times \frac{15}{100} - 100 \times \frac{1}{5} \times \frac{10}{100}$$

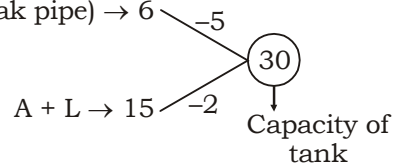
$$= 12 - 2 = 10 \text{ unit}$$

Now ATQ,

$$10 \text{ unit} \rightarrow ₹ 45$$

$$\therefore 100 \text{ unit} \rightarrow \frac{45}{10} \times 100 = ₹ 450$$

124. (A) L(leak pipe)  $\rightarrow 6$



Efficiency of filling pipe = 3 units/hour

Required time to fill the tank =  $\frac{30}{3}$   
 = 10 hours  
 ATQ,  
 tap (A) fill at the rate 10 litres per hour  
 then capacity of tank =  $10 \times 10 = 100$  litres

125. (A)  $\cos A + \sin A = \sqrt{2} \cos A$

$\sin A = (\sqrt{2} - 1) \cos A$

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

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

$\sin A (\sqrt{2} + 1) = \cos A$

Now,  $\cos A - \sin A$

=  $\sin A (\sqrt{2} + 1) - \sin A$

=  $\sqrt{2} \sin A$

126. (D) Sumit's present age =  $2x$  years

Prakash's present age =  $3x$  years

$\therefore 3x - 2x = 6$

$x = 6$

$\therefore$  Required ratio

=  $(2 \times 6 + 6) : (3 \times 6 + 6)$

=  $18 : 24 = 3 : 4$

127. (C) Let the sum be P.

As the interest is compounded half-yearly.

$\therefore R = 2\%$ ,  $T = 2$  half years

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

$\Rightarrow 7803 = P \left(1 + \frac{2}{100}\right)^2$

$\Rightarrow 7803 = P \left(1 + \frac{1}{50}\right)^2$

$\Rightarrow 7803 = P \times \frac{51}{50} \times \frac{51}{50}$

$\Rightarrow P = \frac{7803 \times 50 \times 50}{51 \times 51} = ₹ 7500$

128. (D)  $\left(\frac{1+x}{x}\right) \left(\frac{x+2}{x+1}\right) \left(\frac{x+3}{x+2}\right) \left(\frac{x+4}{x+3}\right) = \frac{x+4}{x}$

129. (C)  $M + T + W + TH = 4 \times 37 = 148^\circ\text{C}$  ... (i)

$TH + F + S + S = 4 \times 41 = 164^\circ\text{C}$  ... (ii)

$M + T + \dots + S + S = 7 \times 39 = 273^\circ\text{C}$  ... (iii)

$\therefore$  The temperature of the fourth day

=  $148 + 164 - 273 = 39^\circ\text{C}$

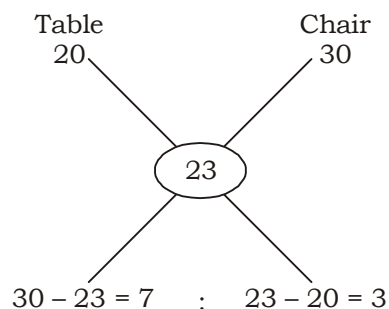
130. (A) Interest = ₹  $(81 - 72) = ₹ 9$

Let the time be  $t$  years

Then,  $9 = \frac{72 \times 25 \times t}{4 \times 100}$

$\Rightarrow t = \frac{9 \times 400}{72 \times 25} = 2$  years

131. (C) By the method of Alligation,



= 7 : 3

$\therefore$  Cost price of table =  $\frac{2000}{7+3} \times 7$

=  $\frac{2000}{10} \times 7 = ₹ 1400$

132. (B) Per hour wages =  $\frac{2400}{60} = ₹ 40$

Per hour wages after increase

=  $40 \times \frac{140}{100} = ₹ 56$

Work hours after reduction

=  $60 \times \frac{250}{3 \times 100} = 50$  hrs.

New weekly wages =  $56 \times 50 = ₹ 2800$

increased in wages =  $2800 - 2400 = ₹ 400$

$\therefore$  % change =  $\frac{400}{2400} \times 100 = 16\frac{2}{3}\%$

133. (D) Length of the floor

= 15 m 17 cm = 1517 cm

Breadth of the floor

= 9 m 2 cm = 902 cm

Area of the floor

=  $1517 \times 902 \text{ cm}^2$

The number of square tiles will be least, when the size of each tile is maximum.

$\therefore$  Size of each tile = HCF of 1517 and 902 = 41

$\therefore$  Required number of tiles

=  $\frac{1517 \times 902}{41 \times 41} = 814$

134. (C) Total runs =  $20 \times 7.2 = 144$

Total runs in 15 overs

=  $15 \times 6 = 90$

Runs to be scored in the next 5 overs

=  $144 - 90 = 54$

$\therefore$  Now, required run-rate to win the match

=  $\frac{54}{5} = 10.8$



135. (A) Let the CP of article be  $x$  and its marked price be  $y$ .

ATQ,

$$90\% \text{ of } y = 115\% \text{ of } x$$

$$\Rightarrow \frac{y \times 90}{100} = \frac{x \times 115}{100}$$

$$\Rightarrow \frac{x}{y} = \frac{90}{115} = \frac{18}{23} = 18 : 23$$

136. (C) Let the required side of triangle be  $x$  cm.

$$\text{So, } \frac{x^2}{7^2} = \frac{256}{196}$$

$$\Rightarrow x^2 = \frac{256 \times 49}{196}$$

$$\Rightarrow x = 8 \text{ cm}$$

137. (D)  $H = 60$  cm

radius = 32 cm

Area of the curved surface =  $\pi r l$

$$L = \sqrt{R^2 + H^2} = \sqrt{(32)^2 + (60)^2}$$

$$= \sqrt{1024 + 3600} = \sqrt{4624} = 68 \text{ cm}$$

Area of curved surface =  $\pi r l$

$$= \frac{22}{7} \times 32 \times 68$$

$$\begin{aligned} \text{Total cost of painting} &= 35 \times \frac{22}{7} \times 32 \times 68 \times \frac{1}{10000} \\ &= ₹ 23.94 \text{ approximate} \end{aligned}$$

138. (B)  $x = a \cos \theta$ ,  $y = b \sin \theta$

$$\begin{aligned} \therefore b^2 x^2 + a^2 y^2 &= b^2 a^2 \cos^2 \theta + a^2 b^2 \sin^2 \theta \\ &= a^2 b^2 (\cos^2 \theta + \sin^2 \theta) \\ &= a^2 b^2 \times 1 = a^2 b^2 \end{aligned}$$

139. (A)  $\sin \theta = \frac{2mn}{m^2 + n^2}$

$$= \frac{\sin \theta \times \frac{1}{\tan \theta}}{\cos \theta} = \frac{\sin \theta \times \frac{1}{\sin \theta} \times \cos \theta}{\cos \theta} = 1$$

140. (A)  $\frac{a+b}{\sqrt{ab}} = \frac{4}{1}$

$$\Rightarrow \frac{a+b}{2\sqrt{ab}} = \frac{2}{1}$$

Applying Componendo and Dividendo

$$\Rightarrow \frac{a+b+2\sqrt{ab}}{a+b-2\sqrt{ab}} = \frac{2+1}{2-1}$$

$$\Rightarrow \frac{(\sqrt{a} + \sqrt{b})^2}{(a-b)^2} = \frac{3}{1}$$

$$\Rightarrow \frac{\sqrt{a} + \sqrt{b}}{\sqrt{a} - \sqrt{b}} = \frac{\sqrt{3}}{1}$$

$$\Rightarrow \sqrt{a} + \sqrt{b} = \sqrt{3} \times \sqrt{a} - \sqrt{3} \times \sqrt{b}$$

$$\Rightarrow (\sqrt{3} + 1) \sqrt{b} = (\sqrt{3} - 1) \sqrt{a}$$

$$\Rightarrow \frac{\sqrt{3} + 1}{\sqrt{3} - 1} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$\Rightarrow \frac{a}{b} = \frac{(\sqrt{3} + 1)^2}{(\sqrt{3} - 1)^2} = \frac{3 + 1 + 2\sqrt{3}}{3 + 1 - 2\sqrt{3}}$$

$$\Rightarrow \frac{a}{b} = \frac{4 + 2\sqrt{3}}{4 - 2\sqrt{3}} = \frac{2 + \sqrt{3}}{2 - \sqrt{3}}$$

$$= (2 + \sqrt{3}) : (2 - \sqrt{3})$$

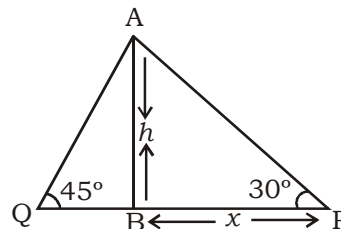
141. (D) Distance covered =  $66 \times \frac{5}{2}$

$$2\pi r = 165 \text{ metre}$$

$$r = \frac{165 \times 7}{2 \times 22}$$

$$= 26.25 \text{ metres}$$

142. (A)



Let the height of the tree be  $h$  and  $BP$  be  $x$  m.

$$\tan 45^\circ = \frac{h}{QB}$$

$$1 = \frac{h}{QB}$$

$$100 - x = h \quad \dots(i)$$

$$\tan 30^\circ = \frac{h}{x}$$

$$\frac{1}{\sqrt{3}} = \frac{h}{x}$$

$$x = \sqrt{3} h \quad \dots(ii)$$

From (i) and (ii), we get

$$100 - \sqrt{3} h = h$$

$$h(\sqrt{3} + 1) = 100$$

$$h = \frac{100}{\sqrt{3} + 1} \times \frac{\sqrt{3} - 1}{\sqrt{3} - 1} = \frac{100(\sqrt{3} - 1)}{2}$$

$$\therefore h = 50(\sqrt{3} - 1) \text{ m}$$

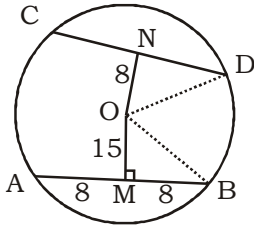
143. (A) Remaining sum = 42050

$$5\% = \frac{1}{20}$$

$$\begin{array}{l} A : B \\ 441 : 400 \rightarrow 840 \\ \qquad \qquad \downarrow \times 50 \\ \qquad \qquad 42050 \end{array}$$

$\therefore$  Share of B =  $400 \times 50 = ₹ 20,000$

144. (C)



$$\begin{aligned} OB &= \sqrt{15^2 + 8^2} \\ &= \sqrt{225 + 64} \\ &= \sqrt{289} \\ &= 17 \text{ cm} \end{aligned}$$

$\therefore$  OB & OD are radius of circle.

$$\begin{aligned} DN &= \sqrt{17^2 - 8^2} \\ &= \sqrt{289 - 64} \\ &= \sqrt{225} \\ &= 15 \text{ cm} \end{aligned}$$

$$\begin{aligned} CD &= CN + DN \\ &= 15 + 15 \\ &= 30 \text{ cm} \end{aligned}$$

145. (B)  $\frac{\cos^2 60^\circ + 4\sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \cos^2 30^\circ}$

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

$$= \frac{1}{4} + 4 \times \frac{4}{3} - 1$$

$$= \frac{1}{4} + \frac{16}{3} - 1$$

$$= \frac{3 + 64 - 12}{12}$$

$$= \frac{55}{12}$$

146. (A) Required expenditure

$$= 25000 \times \frac{(20 + 30)}{100} = ₹ 12,500$$

147. (D) Required total expenditure

$$= \frac{15000}{(10 + 20)} \times 100 = ₹ 50,000$$

148. (D) From option (D),

$$\frac{360^\circ}{100} \times (30 - 15)$$

$$= \frac{360^\circ}{100} \times 15 = 54^\circ$$

$\therefore$  Option D is correct.

149. (B) Required percentage

$$= \frac{(15 - 10)}{15} \times 100$$

$$= \frac{5}{15} \times 100 = 33.33\%$$

150. (C) From option (C),

$$\frac{360^\circ}{100} \times (20 + 5)$$

$$= \frac{360^\circ}{100} \times 25 = 90^\circ$$

$\therefore$  Option C is correct.

**MEANINGS IN ALPHABETICAL ORDER**

<b>Word</b>	<b>Meaning in English</b>	<b>Meaning in Hindi</b>
Admonish	to speak to (someone) in a way that expresses disapproval or criticism	भर्त्सना करना
Bison	a large wild animal of the cow family that is covered with hair	जंगली सांड
Cultivated	having a high level of education and showing good manners	सभ्य
Dialects	a form of a language that is spoken in a particular area and that uses some of its own words, grammar, and pronunciations	प्रांतीय भाषा, बोली
Digression	a temporary departure from the main subject in speech or writing.	विचलन
Discrepancy	a difference between two or more things that should be the same	अंतर, विसंगति
Dud	a thing that is useless	व्यर्थ, बेकार
Figurative	not literal; using figures of speech	प्रतीकात्मक
Fleeting	lasting only a short time	अस्थायी
Heretical	against the principles of a particular religion	विधर्मी
Hood wink	to trick somebody	छलना
Imprecation	an offensive word or phrase or a spoken curse	फटकार, लानत
Infructuous	fruitless	निष्फल
Jargons	words or expressions that are used by a particular profession or group of people, and are difficult for others to understand	वर्ग विशेष की शब्दावली
Judiciary	the judges of a country or a state, collectively	न्यायपालिका, न्यायतंत्र
Jurisprudence	the scientific study of law	न्यायशास्त्र
Juristic	of or relating to law or to legal rights and obligations	न्याय-संबंधी
Nomenclature	a system of naming things, especially in a branch of science	नामपद्धति
Obligation	an act or course of action to which a person is morally or legally bound.	दायित्व
Outnumbering	to be greater in number than somebody/something	संख्या में अधिक होना
Outskirts	a part furthest from the centre	बाह्य क्षेत्र
Paranoid	suffering from a mental illness in which someone wrongly believe that other people are trying to harm him	पागल, भ्रमित व्यक्ति
Paraphrase	to express what somebody has said or written using different words, especially in order to make it easier to understand	सविस्तार
Poignant	evoking a keen sense of sadness or regret	हृदयविदारक, मार्मिक
Precision	the quality of being exact, accurate	शुद्धता, सुस्पष्टता
Prerogative	a right or advantage belonging to a particular person or group because of their importance or social position	विशेषाधिकार
Presage	a warning or sign that something unpleasant will happen	पूर्वसूचना
Snotty	having or showing a superior or conceited attitude.	मगरूर, घमंडी
Steep	having a sharp inclination	तीव्र ढलानवाला
Vindicate	to prove that somebody accused of doing something wrong or illegal is not guilty	निर्दोष ठहराना

