
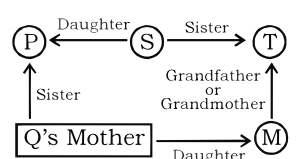



ANSWER SET - 06

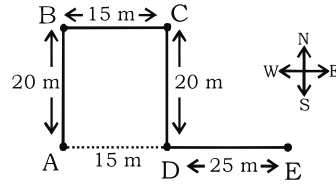
01. (3) 02. (2) 03. (3) 04. (4) 05. (3)
 06. (3) 07. (1) 08. (2) 09. (4) 10. (4)
 11. (3) 12. (4) 13. (2) 14. (1) 15. (4)
 16. (3) 17. (1) 18. (3) 19. (4) 20. (2)
 21. (3) 22. (4) 23. (1) 24. (2) 25. (3)
 26. (2) 27. (4) 28. (2) 29. (1) 30. (4)
 31. (1) 32. (1) 33. (2) 34. (2) 35. (1)
 36. (3) 37. (2) 38. (2) 39. (1) 40. (4)
 41. (3) 42. (3) 43. (3) 44. (2) 45. (1)
 46. (2) 47. (1) 48. (3) 49. (2) 50. (1)
 51. (4) 52. (3) 53. (3) 54. (2) 55. (3)
 56. (1) 57. (3) 58. (2) 59. (2) 60. (1)
 61. (1) 62. (2) 63. (2) 64. (3) 65. (2)
 66. (2) 67. (2) 68. (2) 69. (4) 70. (2)
 71. (3) 72. (4) 73. (3) 74. (2) 75. (2)
 76. (2) 77. (2) 78. (2) 79. (4) 80. (1)
 81. (1) 82. (1) 83. (2) 84. (3) 85. (1)
 86. (4) 87. (1) 88. (3) 89. (1) 90. (4)
 91. (4) 92. (4) 93. (3) 94. (4) 95. (3)
 96. (1) 97. (4) 98. (3) 99. (2)

EXPLANATION - 06

01. $16^2 = 256$ $18^2 = 324$

02. As, $108 \div 4 = 27$
 Same as, $776 \div 4 = 194$
03. As, we get Calcium from Milk, in the same way, we get Protein from Pulses.
04. As YAD : NUS \rightarrow DAY : SUN
 Same as THGIN : NOON
 \rightarrow NIGHT : MOON
05. $\begin{matrix} F & C & G & J & D & A & E & H \\ \downarrow -3 & \uparrow +3 & \downarrow -3 & \uparrow +3 & \downarrow -3 & \uparrow +3 & \downarrow -3 & \uparrow +3 \\ K & I & M & P & H & E & I & L \\ \downarrow -2 & \uparrow +3 & \downarrow -3 & \uparrow +3 & \downarrow -3 & \uparrow +3 & \downarrow -3 & \uparrow +3 \end{matrix}$
06. 2187 is not a perfect cube.
 ($11^3=1331$, $12^3=1728$, $13^3=2197$)
07. Rest are geometrical figure
08. $\begin{matrix} 1 & 2 & 12 & 5 \\ A & B & L & E \\ \uparrow & \uparrow & & \end{matrix}$
 \therefore Letter pair = AB \Rightarrow One
09. An essential part of given word KNOWLEDGE is **learning**, because by learning any one can get Knowledge.
10. 
 Here sex of M is not known, so, M is either grandfather or grandmother of T
11. $c \ b \ b \ g / c \ b \ b \ g / c \ b \ b \ g$
12. $\begin{matrix} 11 & 12 & 17 & 18 & 23 & 24 & 29 & 30 \\ \downarrow +1 & \uparrow +5 & \downarrow +1 & \uparrow +5 & \downarrow +1 & \uparrow +5 & \downarrow +1 & \uparrow +5 \end{matrix}$
13. P R O N O U N C I A T I O N

15. As, RED $\rightarrow 18 \times 5 \times 4 = 360$

Same as, GREEN $\rightarrow 7 \times 18 \times 5 \times 5 \times 14 = 44100$
 Hence, GREEN can be coded as 44100.

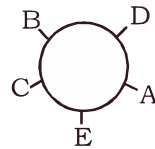
16. $\Delta = 7$ $\square = 12$
 $\Delta + \square + o = 7 + 12 + 2 = 21$
17. Walking diagram of Ahmad is as given below.



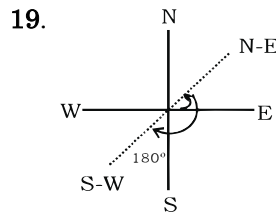
Let point A is the starting point and point E is the end point of the path, travelled by Ahmad.

\therefore Distance of Ahmad from his starting point = AD + DE
 = BC + DE [\because AD = BC]
 = (15 + 25) m = 40 m

18. By given information in sitting arrangement is as follows

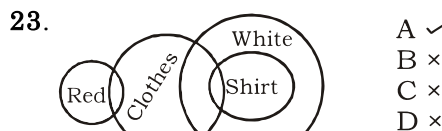


Hence, it is clear that B is sitting to the immediate left of C.

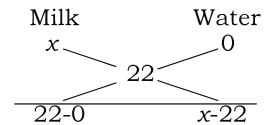


It is clear from diagram that now he is facing South-West direction.

20. $a + b \rightarrow a > b$ (i)
 $b + c \rightarrow b > c$ (ii)
 from equation (i) & (ii) we have
 $a > b > c \Rightarrow a > c \Rightarrow a + c$
21. The meaningful order of the given words are as below.
 Birth \rightarrow Education \rightarrow Marriage
 \rightarrow Death \rightarrow Funeral
22. From given information, we have
 $A > B$ (i)
 $C > D > E$ (ii)
 $A > D > B$ (iii)
 It is clear from (i), (ii) & (iii) that Either A or C can be the tallest.



26. Let price of milk = x per liter



$$\frac{22}{x-22} = \frac{15}{3}$$

$$15x - 330 = 26$$

$$15x = 356$$

$$x = ₹26.40/ \text{ litre}$$

or, Required Rate of milk

$$= \frac{18 \times 22}{15} = ₹26.40/ \text{ litre}$$

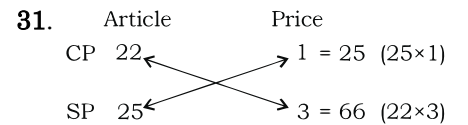
27. $20 \times 15 = 25 \times D_2$
 $D_2 = \frac{20 \times 15}{25} = 12 \text{ days}$
28. In 1 min i.e. 60 sec. distance travelled by the wheel = $12 \times 2\pi r$
 \therefore In 1 sec distance travelled by the

$$\text{wheel} = \frac{12 \times 2\pi r}{60} = \frac{2}{5}\pi r$$

$$\therefore \text{Angle} = \frac{\text{arc}}{\text{radius}} = \frac{\frac{2}{5}\pi r}{r} = \frac{2}{5}\pi$$

29. $x = 6y$ (i)
 $(x + 4) = 4(y + 4)$; $x + 4 = 4y + 16$
 $6y + 4 = 4y + 16$ [value of $x = 6y$]
 $2y = 16 - 4$; $2y = 12$; $y = 6 \text{ year}$

30. Let CP = 100%
 After increase it will be = $100 + x$ %
 Required percentage
 $= \left(\frac{x}{100 + x} \right) \times 100\%$



$$\text{Profit \%} = \frac{66 - 25}{25} \times 100 = \frac{41}{25} \times 100 = 164\%$$

32. Required% = $\frac{30}{100 - 30} \times 100$

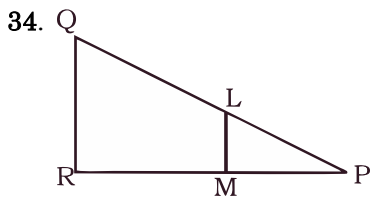
$$= \frac{30}{130} \times 100$$

$$= \frac{300}{13} = 23 \frac{1}{13} \%$$

33. $32 \times \frac{25}{100} = 8$

₹8 discount on 1 shirt

$$\text{So, number of shirt} = \frac{40}{8} = 5$$



$\Delta PQR \sim \Delta MLP$

$$\frac{\text{Area of } \Delta MLP}{\text{Area of } \Delta PQR} = \frac{PL^2}{PQ^2}$$

Let area of $\Delta MLP = X$, area of $\Delta RQP = 3X$

$$\frac{X}{3X} = \frac{PL^2}{PQ^2}; \frac{PL}{PQ} \Rightarrow \frac{1}{\sqrt{3}}$$

$$\Rightarrow \frac{PQ}{PL} = \frac{\sqrt{3}}{1}$$

$$\Rightarrow \frac{PQ - PL}{PL} = \frac{\sqrt{3} - 1}{1}$$

$$\Rightarrow \frac{QL}{PL} = \frac{\sqrt{3} - 1}{1}$$

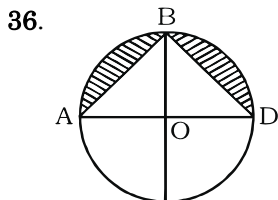
$$\Rightarrow \frac{PL}{QL} = \frac{1}{\sqrt{3} - 1}$$

35. Ratio 4 : 3 : 1

$$3 \xrightarrow{\times 22.50} 67.50$$

then, $4 + 3 + 1 \Rightarrow 8 \xrightarrow{\times 22.50} 180$

So, cost of book = ₹180



$$\text{Radius of circle} = \frac{3a}{2}$$

$$\text{area of semi-circle} = \frac{\pi}{2} \times \left(\frac{3a}{2}\right)^2$$

$$= \frac{9\pi}{8} a^2$$

$$\text{Area of } \Delta ABD = \frac{1}{2} \times 3a \times \frac{3}{2} a = \frac{9}{4} a^2$$

Area of the shaded part

$$= \frac{9\pi}{8} a^2 - \frac{9}{4} a^2$$

$$= \frac{9}{4} a^2 \left(\frac{\pi}{2} - 1 \right) \text{ sq unit}$$

37. $1 \cos^2 \theta + m \sin^2 \theta = \frac{\cos^2 \theta (1 + \sin^2 \theta)}{\cot^2 \theta \left(\frac{1 + \sin^2 \theta}{\sin^2 \theta} \right)}$

$$1 \cos^2 \theta + m(1 - \cos^2 \theta) = \sin^2 \theta \left(\frac{1 + \sin^2 \theta}{\sin^2 \theta} \right)$$

$$1 \cos^2 \theta + m - m \cos^2 \theta = 1 + 1 - \cos^2 \theta$$

$$1 \cos^2 \theta - m \cos^2 \theta + \cos^2 \theta = 2 - m$$

$$\cos^2 \theta (1 - m + 1) = 2 - m$$

$$\cos^2 \theta = \frac{2 - m}{1 - m + 1}$$

$$\sec^2 \theta = \frac{1 - m + 1}{2 - m}$$

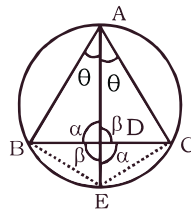
$$\tan^2 \theta = \frac{1 - 1}{2 - m}; [\sec^2 \theta = \tan^2 \theta + 1]$$

$$\tan \theta = \sqrt{\frac{1 - 1}{2 - m}}$$

38. Original rate of income tax

$$= \frac{1}{19 + 1} \times 100 = 5\%$$

39.



AD is bisector of $\angle BAC$

$$\angle EBC = \theta$$

{angle in the same segment of a circle}

$$\angle BCE = \theta$$

{angle in the same segment of a circle}

$\Delta ABD \sim \Delta DCE$ and $\Delta ADC \sim \Delta BDE$

$$\frac{AB}{EC} = \frac{BD}{DE} \Rightarrow \frac{AB}{BD} = \frac{EC}{DE} \dots (i)$$

$$\frac{AC}{BE} = \frac{DC}{DE} \Rightarrow \frac{AC}{DC} = \frac{BE}{DE} \dots (ii)$$

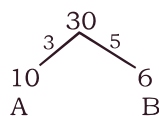
EC = BE [equal angle for equal side]

From (i) and (ii)

$$\frac{AB}{BD} = \frac{AC}{DC} \Rightarrow \frac{AB}{AC} = \frac{BD}{DC}$$

So, $AB : AC = BD : DC$

40.



work done by A + B in 3 days

$$= 3 \times (3 + 5) = 24$$

Remaining work = $30 - 24 = 6$

\therefore C does 6 work in 2 days

$$\therefore \text{C does 30 work} = \frac{2}{6} \times 30$$

= 10 days

41. $\frac{1}{3} \pi r^2 h = \frac{4}{3} \pi R^3$

$$3.6 \times 3.6 \times 14.4 = 4 \times R^3$$

$$R^3 = 3.6 \times 3.6 \times 3.6$$

$$R = 3.6 \text{ cm}$$

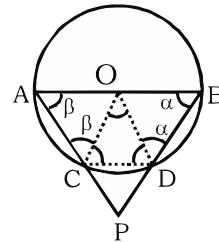
42. C.P. of 50 gram cashewnut = ₹25

$$\left[\frac{500}{1000} \times 50 \right]$$

S.P of 50 gram cashewnut = ₹20

$$\text{Loss \%} = \frac{5}{25} \times 100 = 20\%$$

43.



OC = OD = CD

So, ΔCOD is equilateral

$$\angle COD = 60^\circ$$

In ΔBOD ;

OB = OD

$$\angle ODB = \angle OBD$$

In ΔAOC ;

AO = OC

$$\angle ACO = \angle CAO$$

$$\angle AOC = 180 - 2\beta$$

$$\angle BOD = 180 - 2\alpha$$

AOB is collinear;

$$\angle AOC + \angle COD + \angle DOB = 180^\circ$$

$$180 - 2\beta + 60^\circ + 180 - 2\alpha = 180^\circ$$

$$2\alpha + 2\beta = 120$$

$$\alpha + \beta = 120$$

In, ΔABP ;

$$\angle PAB + \angle PBA + \angle APB = 180^\circ$$

$$\beta + \alpha + \angle APB = 180^\circ$$

$$\angle APB = 180 - (\alpha + \beta)$$

$$= 180 - 120^\circ$$

So, $\angle APB = 60^\circ$

44. $\frac{3}{4} - \frac{1}{2} = \frac{3 - 2}{4} = \frac{1}{4}$

$$\frac{1}{4} \text{ part} = 48 \text{ litres}$$

$$1 \text{ part} = 48 \times 4 = 192 \text{ litres}$$

$$45. 7 + 5 = 12 \xrightarrow{\times 15} 180$$

$$\text{Pencils} = 5 \xrightarrow{\times 15} 75$$

$$28\% \text{ of pencils} = 75 \times \frac{28}{100} = 21$$

$$46. A : B : C = 12 \times 2000 : 4 \times 2500 : 8 \times 1500$$

$$\text{Share of } A : B : C = 12 : 5 : 6$$

$$\Rightarrow 23 \xrightarrow{\times 100} 2300$$

$$C\text{'s share} = 6 \times 100 = ₹600$$

$$47. \text{Area of such road} = x(1 + b - x)$$

$$\text{Where } x \text{ is width of road}$$

$$= 10(80 + 60 - 10)$$

$$= 1300 \text{ sq m}$$

$$48. a + \frac{1}{a} = \sqrt{5}$$

$$a^3 + \frac{1}{a^3} = (\sqrt{5})^3 - 3\sqrt{5}$$

$$= 5\sqrt{5} - 3\sqrt{5} = 2\sqrt{5}$$

$$49. \text{Let LCM of } 65 \text{ \& } 40 = 520$$

$$\text{Let the distance be } 520 \text{ km}$$

$$\text{time taken without stoppage}$$

$$= \frac{520}{65} = 8 \text{ h}$$

$$\text{time taken with stoppage} = \frac{520}{40}$$

$$= 13 \text{ h}$$

$$\text{train takes } 5 \text{ hour more in } 13 \text{ hr.}$$

$$\text{So, } \frac{5 \times 60}{13} = 23 \frac{1}{13} \text{ min/ hour}$$

$$50. \frac{P \left(1 + \frac{r}{100}\right)^2}{P \left(1 + \frac{r}{100}\right)^3} = \frac{2420}{2662} = \frac{10}{11}$$

$$1 + \frac{r}{100} = \frac{11}{10}$$

$$\frac{r}{100} = \frac{11}{10} - 1 = \frac{1}{10}$$

$$r = 10\%$$

$$51. \text{Let the distance } x \text{ km.}$$

$$\frac{x}{7-3} - \frac{x}{7+3} = 6$$

$$\frac{x}{4} - \frac{x}{10} = 6$$

$$\frac{5x - 2x}{20} = 6$$

$$3x = 6 \times 20$$

$$x = 40 \text{ km}$$

$$52. \sin^2 \theta + \cos^2 \theta + \sec^2 \theta + \operatorname{cosec}^2 \theta +$$

$$\cot^2 \theta \tan^2 \theta$$

$$= 1 + \sec^2 \theta \cdot \tan^2 \theta + \operatorname{cosec}^2 \theta \cdot \cot^2 \theta$$

$$+ 2(\tan^2 \theta + \cot^2 \theta)$$

$$= 3 + 2[(\tan \theta - \cot \theta)^2 + 2]$$

$$= 7 + 2(\tan \theta - \cot \theta)^2$$

$$[\because (\tan \theta - \cot \theta)^2 \geq 0]$$

So, the minimum value is 7.

$$53. A = 6x^3 + 60x^2 + 150x$$

$$= 6x(x^2 + 10x + 25)$$

$$= 6x(x + 5)^2$$

$$B = 3x^4 + 12x^3 - 15x^2$$

$$= 3x^2(x^2 + 4x - 5)$$

$$= 3x^2(x + 5)^2(x - 1)$$

$$\text{LCM of } A \text{ \& } B$$

$$= 6x^2(x + 5)^2(x - 1)$$

$$54. \text{Ratio of teachers of Mathematics and Hindi}$$

$$= 1800 \times \frac{13}{100} : 1800 \times \frac{8}{100}$$

$$= 13 : 8$$

$$55. \text{Required percent} = \frac{12 - 8}{8} \times 100$$

$$= \frac{4}{8} \times 100 = 50\%$$

56. An input device is a peripheral (piece of computer hardware equipment) used to provide data and control signals to an information processing system such as a computer or information appliance. Examples are keyboards, scanner, digital cameras and Joysticks.

57. Three gases are responsible for causing Acid rain i.e - carbon dioxide that dissolves in rain water produces carbonic acid. Sulphur dioxide dissolves in rain water produces Sulphuric acid which is highly corrosive and causes abbrasive effects to metals and rocks and at last NO_2 forms Nitric acid and Nitrous acid.

58. Relative humidity is a function of both . how much moisture the air contains and the temperature. If you raise the temperature while keeping moisture content constant the relative humidity decreases.

59. The high tide and low tide are caused by the gravitational forces between the earth and the moon. But sun does not cause any tide because the gravitational pull of the sun on the earth is larger than that of the moon. Due to the much greater distance the force changes very little from one end of the earth to the other.

61. Chloroplasts are known as the

kitchen of the cell because sunlight is absorbed by them and converted into energy and helps them in making food. So, chloroplasts are the organelles where plants prepare their own food.

62. The Capsaicin (Capsaicinoids) are found in chillies bind to a receptor in the mucous membrane of the mouth when ingested. This is the receptor associated with heat and physical abrasion and hence produces a burning sensation.

64. Polio or Poliomyelitis is a highly contagious viral infection that can lead to paralysis, breathing problems or even death.

65. Turmeric is the rhizome on underground stem of a ginger like plant. The whole turmeric is the tuberous rhizome with a rough-segmented skin.

66. Diphtheria is an acute and upper respiratory tract illness and infectious disease caused by the bacteria corynebacterium Diphtheriae. It is spread by direct physical contact or breathing the aerosolized secretions of infected individuals.

70. Charle's law is also known as the law of volumes. It is an experimental gas law which describes how gases tend to expand when heated.

$$V \propto T$$

$$\text{or, } \frac{V}{T} = K$$

Where, V is the volume of the gas
T is the temperature of the gas (measured in Kelvin)

K is a constant