

ANSWER SET - 07

01. (3) 02. (3) 03. (2) 04. (1) 05. (4)
 06. (3) 07. (4) 08. (1) 09. (4) 10. (3)
 11. (2) 12. (1) 13. (2) 14. (3) 15. (1)
 16. (4) 17. (2) 18. (2) 19. (4) 20. (1)
 21. (2) 22. (3) 23. (1) 24. (4) 25. (4)
 26. (2) 27. (1) 28. (2) 29. (1) 30. (2)
 31. (4) 32. (1) 33. (1) 34. (3) 35. (4)
 36. (1) 37. (1) 38. (4) 39. (3) 40. (1)
 41. (3) 42. (2) 43. (4) 44. (4) 45. (2)
 46. (3) 47. (1) 48. (4) 49. (1) 50. (4)
 51. (4) 52. (3) 53. (1) 54. (3) 55. (3)
 56. (4) 57. (4) 58. (2) 59. (2) 60. (4)
 61. (3) 62. (4) 63. (2) 64. (1) 65. (4)
 66. (3) 67. (4) 68. (3) 69. (2) 70. (2)
 71. (2) 72. (1) 73. (2) 74. (3) 75. (2)
 76. (2) 77. (4) 78. (1) 79. (4) 80. (3)
 81. (1) 82. (4) 83. (1) 84. (2) 85. (3)
 86. (3) 87. (2) 88. (2) 89. (2) 90. (4)
 91. (1) 92. (2) 93. (2) 94. (4) 95. (3)
 96. (1) 97. (4) 98. (4) 99. (4) 100. (2)

EXPLANATION - 07

01. 'When' is related to 'time'. Similarly 'where' is related to place.
02. $4831 \rightarrow 8 + 3 + 1 - 4 = 8$
 $5437 \rightarrow 4 + 3 + 7 - 5 = 9$
03.

A	D	H	M
↓	↓	↓	↓
1	4	8	13
Z	W	S	N
↓	↓	↓	↓
1	4	8	13
C	I	F	D
↓	↓	↓	↓
3	9	6	4
x	r	u	w
↓	↓	↓	↓
3	9	6	4

 (Positions Alphabetically)
 (Positions in reverse order)
 (Positions Alphabetically)
 (Positions in reverse order)
04. $O \leftarrow P \rightarrow Q$ $J \leftarrow K \rightarrow L$
 $Z \leftarrow A \rightarrow B$ $C \leftarrow D \rightarrow E$
 $Q \leftarrow R \rightarrow S$ $B \leftarrow C \rightarrow D$
 $Z \leftarrow A \rightarrow B$ $Z \leftarrow A \rightarrow B$
 $L \leftarrow M \rightarrow N$ $L \leftarrow M \rightarrow N$
 $N \leftarrow O \rightarrow P$ $O \leftarrow P \rightarrow Q$
 $T \leftarrow U \rightarrow V$ $T \leftarrow U \rightarrow V$
 $M \leftarrow N \rightarrow O$ $R \leftarrow S \rightarrow T$
 $S \leftarrow T \rightarrow U$
05. Except Dion Nash, all are wicket keepers.
06. $\frac{8+7+6}{3+4} = \frac{21}{7} = 3$,
 $\frac{3+6+6}{3+2+0} = \frac{15}{5} = 3$
 $\frac{9+7+5}{2+1} = \frac{21}{3} = 7$
 $\frac{7+0+5}{3+0+1} = \frac{12}{4} = 3$
07. Except Bhojpuri, all languages are mentioned in eighth schedule of the constitution.

08. Village \rightarrow Block \rightarrow Subdivision \rightarrow District \rightarrow Commisionary \rightarrow State.
09. Restaurant \rightarrow Restore \rightarrow Revolution
 (1) (2) (3)
 \rightarrow Revolve
 (4)

10. a b c d d / c b a / a b c d d / c b a
11.

1	3	7	15	31	63	127
↑	↑	↑	↑	↑	↑	↑
$+2^1$	$+2^2$	$+2^3$	$+2^4$	$+2^5$	$+2^6$	
(2)	(4)	(8)	(16)	(32)	(64)	

12.

12	23	67	265	1321
↑	↑	↑	↑	↑
$\times 2 - 1$	$\times 3 - 2$	$\times 4 - 3$	$\times 5 - 4$	

$$= 265 \times 5 - 4 = 1325 - 4 = 1321$$

13.

Month	Jan	Feb	Mar	Apr	May	June
↓	↓	↓	↓	↓	↓	↓
Code	0	3	3	6	1	4
Month	July	Aug	Sept	Oct	Nov	Dec
↓	↓	↓	↓	↓	↓	↓
Code	6	2	5	0	3	5

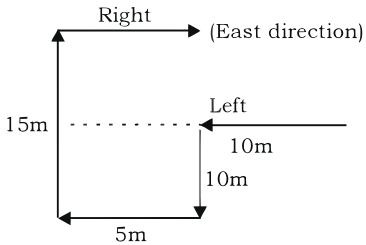
- $$\frac{87+21+4+10}{7} = \frac{122}{7}$$
- $$= 17 \times 7 + \boxed{3} \rightarrow \text{remainder}$$
- ↓
- 3rd days is wednesday
- 87 \rightarrow Tens digit of year
 21 \rightarrow Quotient of $(87 \div 4)$
 4 \rightarrow Code of months
 10 \rightarrow Given date

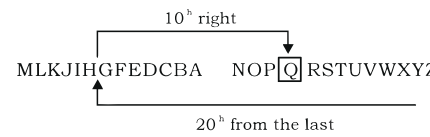

14. \therefore minute hand runs 55 minutes faster than hour hand in 60 minutes
- $$\therefore \text{ " " } 1 \text{ " } \frac{60}{55} \text{ "}$$
- $$\therefore \text{ " " } 45 \text{ " } \frac{60}{55} \times 45 = 49 \frac{1}{11}$$

- So, at 3 : $49 \frac{1}{11}$ minutes both the hands will be in opposite directions.

15.

M	A	S	T	E	R	O	C	V	W	I	V
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
$+2$	$+2$	$+3$	$+3$	$+4$	$+4$						
- | | | | | | | | | | | | |
|------|------|------|------|------|------|---|---|---|---|---|---|
| C | R | A | D | L | E | E | T | D | G | P | I |
| ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| $+2$ | $+2$ | $+3$ | $+3$ | $+4$ | $+4$ | | | | | | |

16. 
- So finally Ramesh is going towards east direction.

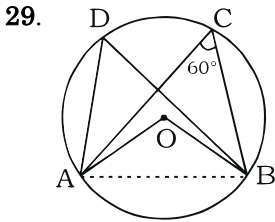
17. 
18. 

19. APPREHEND
21. As per the question, $- = \times$, $+ = +$, $\times = -$
- Then, $100 - 10 \times 1000 + 1000 \times 100 \times 10$
 $= 100 \times 10 - 1000 + 1000 - 100 \times 10$
 (After changing sign as per question)
 $= 1000 - 1000 + 1000 - 1000$
 $= 2000 - 2000 = 0$

22. $5 + 3 = 8 + 4 = \boxed{12}$
 $12 + 1 = 13$
 \therefore We have $\boxed{? = 12}$
25. $0 \times 1 \times 2 \dots \dots \times 9 = 0$
 Which is none of these
26. The required remainder
 $= (4 \times 5) \div 7$
 So, remainder will be 6

27.
$$\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = \frac{10}{3}$$
- $$\frac{x+y}{\sqrt{xy}} = \frac{10}{3} \Rightarrow \frac{10}{\sqrt{xy}} = \frac{10}{3}$$

28. Let number of boys = B, and Girls = G
 $B = G - 2$
 $B + G = 52$
 $G - 2 + G = 52$
 $G = 27$, $B = 25$
 Total weight = $52 \times 52 = 2704$ kg.
 Total weight of boys = $25 \times 60 = 1500$ kg
 Total weight of girls = $2704 - 1500 = 1204$ kg
 Average weight of girls = $\frac{1204}{27}$
 $= 44.59$ kg



$\angle AOB = 2 \times \angle ACB$
 $= 2 \times 60^\circ = 120^\circ$

Then, convex $\angle AOB = 360^\circ - 120^\circ = 240^\circ$

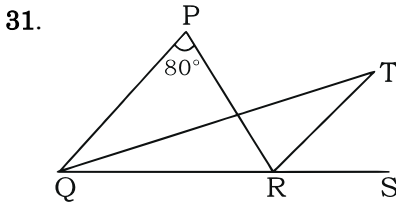
30. $x = \sqrt[2]{7 \sqrt[3]{7 \sqrt[4]{7 \sqrt[5]{7 \sqrt[6]{7 \sqrt[7]{7}}}}}}$

$x^2 = 7^{\frac{1}{2}} \times 7^{\frac{1}{2} \times \frac{1}{2}} \times 7^{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} \times 7^{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} \times 7^{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} \times 7^{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}}$

$= 7^{\frac{1}{2}} \times 7^{\frac{1}{4}} \times 7^{\frac{1}{8}} \times 7^{\frac{1}{16}} \times 7^{\frac{1}{32}} \times 7^{\frac{1}{64}}$

$= 7^{\frac{32+16+8+4+2+1}{64}}$

$= 7^{\frac{63}{64}}$



$\angle QTR = \frac{\angle QPR}{2} = \frac{80}{2} = 40^\circ$

32. $A + B = 90$
 $B = 90 - A$
 $\sec^2 A + \sec^2 B - \sec^2 A \times \sec^2 B$
 $= \sec^2 A + \csc^2 B - \sec^2 A \times \csc^2 B$
 $= \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} - \frac{1}{\cos^2 A} \times \frac{1}{\sin^2 A}$

$\Rightarrow \frac{0}{\sin^2 A \cos^2 A} = 0$

33. Distance = $(10 - 2) \times 4 = 32$ km

Required time = $\frac{32}{10+2}$

$= \frac{32}{12}$

$= 2$ hour 40 minutes

34. Let the original rate be ₹x per dozen

New rate = $x \times \frac{75}{100} = \frac{3}{4}x$

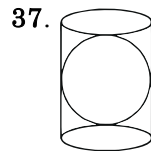
$\frac{20}{\frac{3}{4}x} - \frac{200}{x} = 2$

$\frac{800 - 600}{3x} = 2$

$x = ₹ \frac{200}{6}$ per dozen

35. Sum of money = $\frac{S.I. \times T.D}{S.I. - T.D}$
 $= \frac{102 \times 68}{102 - 68} = \frac{102 \times 68}{34}$
 $= ₹204$

36. $R = \frac{6-1}{3-1} \times 5 = 12.5\%$



Let the height of the cylinder = h
 Then,

radius = $\frac{h}{2}$

Also, radius of sphere, $r = \frac{h}{2}$

\therefore Volume of cylinder = $\pi \left(\frac{h}{2}\right)^2 \times h$
 $= \frac{\pi \times h^3}{4}$

And Volume of sphere S

$= \frac{4}{3} \pi \times \left(\frac{h}{2}\right)^3$

Volume of remaining material

$S_1 = \frac{\pi h^3}{4} - \frac{\pi h^3}{6}$

$\frac{4}{3} \pi R^3 = \frac{\pi h^3}{12}$

$R^3 = \frac{h^3}{16} \Rightarrow R = \frac{h}{\sqrt[3]{2}} = \frac{h}{2^{\frac{1}{3}}}$

Required ratio = $\frac{r}{R} = \frac{\frac{h}{2}}{\frac{h}{2^{\frac{1}{3}}}}$

$r : R = 2^{\frac{1}{3}} : 1$

38. Total number of vote = $1136 + 7636 + 11628 = 20400$

Required percentage = $\frac{11628}{20400}$

$\times 100 = 57\%$

39. If $a + b + c = 0$, then, $a^3 + b^3 + c^3 = 3abc$

$= \frac{a^3}{bc} + \frac{b^3}{ca} + \frac{c^3}{ab} = \frac{a^3}{abc} + \frac{b^3}{abc} + \frac{c^3}{abc}$

$\frac{a^3 + b^3 + c^3}{abc} = \frac{3abc}{abc} = 3$

40. Let the price of table be t and chair be c

$4t + 5c = 1000$

$4 \times \left(t \times \frac{110}{100}\right) + 5 \times \left(c \times \frac{120}{100}\right) - (4t + 5c) = 120$

$\frac{44t}{10} - 4t + \frac{30c}{5} - 5c = 120$

$\frac{4t}{10} + c = 120$

$4t + 10c = 1200$

$4t + 5c = 1000$

 $5c = 200$
 $c = ₹40$

$\therefore t = ₹200$

41. $S = \frac{D}{t}$

$(80 + 55) = \frac{65}{t}$

$\Rightarrow t = \frac{65}{135} = \frac{13}{27}$ hrs.

$\Rightarrow t = \frac{13}{27} \times 60$

$= \frac{13 \times 20}{9}$ minutes

\Rightarrow Two minutes before = $\left(\frac{260}{9} - 2\right)$

$= \frac{242}{9}$ minutes

\Rightarrow Distance travelled by both train in $\frac{242}{9}$ minutes

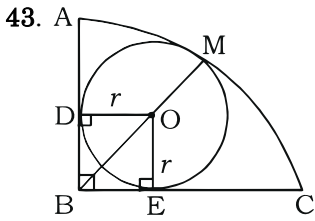
$= 135 \times \frac{242}{9 \times 60} = 60.5$ km

Required distance = $(65 - 60.5)$ km = 4.5 km

42. Principal = P, rate of interest

$= \frac{r}{k} \% \text{ p.a.}$

$$A = P \left(1 + \frac{r}{k \times 100} \right)^{nk}$$



Let r is the radius of small circle.

$$\angle D = \angle E, \angle B = 90^\circ$$

So, $\angle DOE$ must be 90°

Hence, $BEOD$ is a square

$$OB = \sqrt{2}r, BM = p$$

$$\Rightarrow OB = p - r = \sqrt{2}r,$$

$$p = r(\sqrt{2} + 1)$$

$$\Rightarrow r = \frac{p}{\sqrt{2} + 1} = p(\sqrt{2} - 1)$$

44. $P \Rightarrow 50 \quad 1 \quad 2$
Ratio of No. $\Rightarrow 2 \quad 3 \quad 4$

Ratio of value $1 : 3 : 8 \Rightarrow$

$$\xrightarrow{\times 80} 960$$

No. of coins $\Rightarrow 2 + 3 + 4 =$

$$\xrightarrow{\times 80} 720$$

45. $x = 2 + 2 + 2^{\frac{2}{3}} + 2^{\frac{1}{3}}$

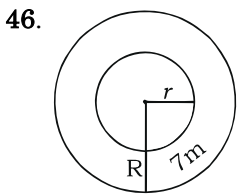
$$x - 2 = 2^{\frac{2}{3}} + 2^{\frac{1}{3}}$$

$$x^3 - 2^3 - 6x(x - 2) = 2^2 + 2^1 + 3 \times$$

$$2^{\frac{2}{3}} \times 2^{\frac{1}{3}} (x - 2)$$

$$x^3 - 8 - 6x^2 + 12x = 4 + 2 + 6x - 12$$

or, $x^3 - 6x^2 + 6x + 12 = 6 + 8 = 14$



Let radius of outer circle be R and inner circle be r .

$$R - r = 7$$

$$2\pi r = 220$$

$$r = 220 \times \frac{7}{2 \times 22} = 35 \text{ m}$$

$$R = 35 + 7 = 42 \text{ m}$$

47. Let the price be x

$$\text{New price} = \frac{x \times 93.75}{100} = \frac{15x}{16}$$

$$\frac{120}{15x} - \frac{120}{x} = 1$$

$$120 \left(\frac{16 - 15}{15x} \right) = 1 \Rightarrow x = ₹8$$

$$\text{New price} = 8 \times \frac{15}{16} = ₹7.5$$

48. C.P. of 1 banana at 1st rate = ₹ $\frac{1}{3}$

C.P. of 1 banana at 2nd rate = ₹ $\frac{1}{4}$

$$\text{Total C.P.} = \frac{1}{3} + \frac{1}{4} = ₹ \frac{7}{12} = ₹ \frac{7}{24}$$

$$\text{S.P. of 1 banana} = \frac{1}{3} - \frac{7}{24} = \frac{1}{24}$$

$$\text{Gain \%} = \left(\frac{1}{24} \div \frac{7}{24} \right) \times 100 = 14 \frac{2}{7} \%$$

49. Let principal = P , rate of interest = $R\%$

$$75 = \frac{P \times R \times 3}{100}$$

$$PR = ₹2500$$

$$1200 - P = \frac{P \times R \times 7}{100}$$

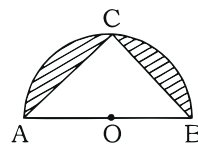
$$120000 - 100P = 7PR$$

$$100P = 120000 - 7 \times 2500$$

$$P = 1200 - 175 = ₹1025$$

$$R = \frac{2500}{1025} = 2.43\%$$

50.



$$\text{Area of semi-circle} = \frac{\pi r^2}{2} = \frac{22}{7} \times$$

$$\frac{7 \times 7}{2} = 77 \text{ sq. cm.}$$

$$\text{Area of triangle} = \frac{1}{2} \times 14 \times 7$$

$$= 49 \text{ sq. cm}$$

$$\text{Area not occupied} = (77 - 49) \text{ s. cm.}$$

$$= 28 \text{ sq. cm}$$

51. $3x - 2 = \frac{3}{x}$

$$\Rightarrow 3x^2 - 2x = 3$$

$$\Rightarrow 3(x^2 - 1) = 2x$$

$$\Rightarrow x - \frac{1}{x} = \frac{2}{3}$$

$$\Rightarrow x^2 + \frac{1}{x^2} = \left(\frac{2}{3} \right)^2 + 2 \times 1$$

$$\Rightarrow \frac{4}{9} + 2 = \frac{22}{9}$$

52. Price of $\frac{2}{5}$ books = $7500 \times \frac{2}{5}$

$$= ₹ 3000$$

Selling price of these books = 3000

$$\times \frac{85}{100} = ₹2550$$

Let he sells the remaining books at the rate of $x\%$ profit

$$4500 \times \frac{100 + x}{100} = 4950$$

$$45(100 + x) = 4950$$

$$x = \frac{4950 - 4500}{45}$$

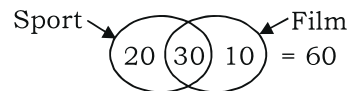
$$= \frac{450}{45} = 10\%$$

53. Number of males who read at least one magazine = $50 + 40 - 30 = 60$

Number of females who read least one magazine = $40 + 50 - 20 = 70$

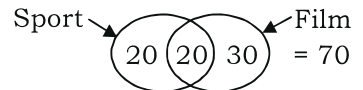
$$\text{Total} = 60 + 70 = 130$$

54. Male :



Total males who don't read either type of magazine = $200 - 60 = 140$

Females :



Total females who don't read either type of magazine = $430 - 70 = 360$

$$\text{Required \%} = \frac{140 + 360}{200 + 430} \times 100$$

$$= \frac{500}{630} \times 100 = 79.36\%$$

55. Total males who likes film magazine = $30 + 180 + 40 = 250$

Total females who like film magazine = $20 + 100 + 50 = 170$

$$\text{Ratio} = 250 : 170$$

$$= 25 : 17$$

56. Baking Soda should not be used while cooking because it destroys number of nutrients, such as Vitamin C, Vitamin D, Riboflavin, Thiamine and essential amino acids.

58. Oxalic acid and Oxalates are use-

ful as reducing agents for photography, bleaching and rust removal.

59. The laser printer in a few years became the dominant mode of printing in various offices. It uses a semiconductor laser and the xerography principle. The laser is focused and scanned across a photoactive Selenium coated drum where it produces a charge pattern which mirrors the material to be printed.
60. NAG is a third generation 'fire-and-forget' anti-tank missile developed in India. It is one of five missile systems developed by Defence Research and Development Organisation (DRDO) under the Integrated Guided Missile Development Programme (IGMDP).
61. Terminator technology refers to plants that have been genetically modified to render sterile seeds at harvest. It is also known as Genetic Use Restriction Technologies or GURTs. The Indian Government banned the import of Terminator seeds as it would threaten traditional crops and put the well being of Indian farmers at risk. The technology would have serious implications on the crop biodiversity. It may lead to gradual extinction of traditional varieties. Inserting terminator genes into crops would prevent them from producing fertile seeds.
63. The force between two current carrying wires give rise to the fundamental definition of the Ampere.
67. Hypoglycemia is also called insulin reaction. It is a condition in which blood glucose level drops too low generally below 70 mg.
68. Incisors grows into tusks of an elephant, which can serve as weapons and as tools for moving objects and digging.