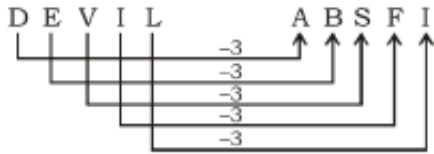


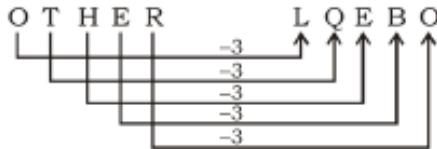
HINTS AND SOLUTIONS

1. (3) Manipuri is a folk dance of Manipur and Kathakali is a folk dance of Kerala.

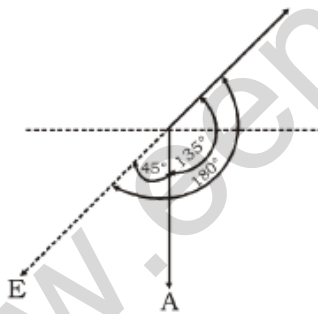
2. (3) As,



So,



3. (3) As, $5 + 1 = 6 \Rightarrow 6^2 = 36$
So, $6 + 1 = 7 \Rightarrow 7^2 = 49$
4. (3) First word is the antonyms of second word.
Note: In english language, 'Cheater' is not correct though commonly used.
5. (4) 761 is a prime number.
6. (4) In rest of the options, the first word is a smaller form of second word.
7. (4) $1^2 - 1 = 0$, $2^2 - 1 = 3$, $3^2 - 1 = 8$, $4^2 - 1 = 15 \neq 27$.
8. (3) Except option (3), rest comply a combination of cube and square of whole numbers.
9. (2)
10. (2)



Point E is his current position which is in South-west direction.

11. (4) Current Ratio of age

$$\begin{array}{cc} 7 & : & 9 \\ \downarrow & & \downarrow \end{array}$$

Sachin Rahul

$$\text{Difference} = 9 - 7 = 2$$

Here, it is given that $2 = 7$ years

As given sachin's ratio is 7,

$$\text{So, } 7 = \frac{7}{2} \times 7 \text{ years} = 24.5 \text{ years}$$

12. (4) As,



So,



13. (1) Here we can count 12 squares in the given figure.

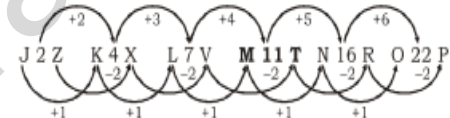
14. (3)

3 days before yest.	2 days before yest.	1 day before yest.	yest.	Today	Tmw.	day after tmw.
Sun	Mon	Tues	Wed	Thur	Fri	Sat

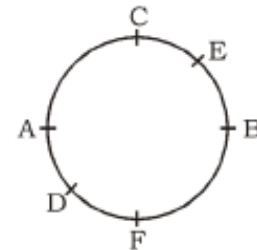
So, we can say that 3 days before yesterday was Sunday.

15. (4) Given:- $(18 + 10 \times 20) - 8 \div 6$
After interchanging the sign we have,
 $(18 \times 10 + 20) \div 8 - 6$
 $= (180 + 20) \div 8 - 6$
 $= 200 \div 8 - 6 = 25 - 6 = 19$

16. (3)



17. (2)



Above mentioned is the position of six persons on a circular table as per given data.

We can clearly see that F is the person sitting to the left of B.

18. (4) $\frac{25 \times 12}{5} = 60$

$$\frac{18 \times 17}{2} = 153$$

$$\frac{36 \times 16}{?} = 96 \Rightarrow \frac{36 \times 16}{96} = 6$$

19. (1) $16 = 9 + 4 + 3$

$$36 = 25 + 6 + 5$$

$$64 = ? + 8 + 7$$

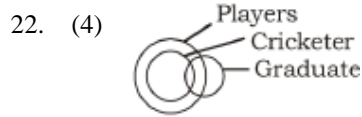
$$\Rightarrow ? = 64 - 15 = 49$$

20. (3) a a b c d/a b c d/a b c c d/a b c d d

So, we have adbbad as the right answer.

21. (3) As,
 $\begin{array}{cccc} S & T & O & P \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 19 & 20 & 15 & 16 \end{array} \Rightarrow 19201516$

So,
 $\begin{array}{cccc} P & O & T & S \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 16 & 15 & 20 & 19 \end{array} \Rightarrow 16152019$



23. (4) $5 = 3^2 - 2^2$
 $21 = 5^2 - 2^2$
 $20 = 6^2 - 4^2$
 $x = 4^2 - 3^2$
 $\Rightarrow 16 - 9 = 7$
 $\Rightarrow x = 7$

24. (2)

25. (4)

26. (4) Let the lengths of the trains be $2x$ & x m
 Total distance = Relative speed \times time

$$= 90 \times \frac{5}{18} \times 12 = 300 \text{ m}$$

$x + 2x = 300$, $x = 100$ and $2x = 200$
 and it crosses the platform in 45 seconds,
 \therefore total distance covered in 45 seconds.

$$= 48 \times \frac{5}{18} \times 45 = 600 \text{ m}$$

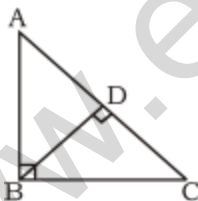
Length of platform = $600 - 200 = 400$ m

27. (1) 1st speed = $\frac{500}{4} = 125$ km/h

2nd speed = $\frac{450}{5} = 90$ km/h

\therefore Required % = $\frac{35}{125} \times 100 = 28\%$

28. (2)



In $\triangle ABC$ and $\triangle BCD$

$\therefore \triangle ABC \sim \triangle BCD$ (by AA)

$$\Rightarrow BC^2 = AC \times CD$$

$$\Rightarrow \frac{AC}{BC} = \frac{AB}{BD} = \frac{BC}{CD} \Rightarrow CD = \frac{BC^2}{AC}$$

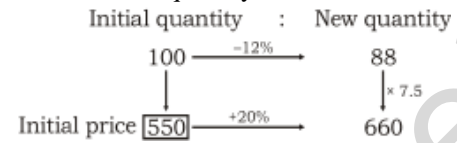
29. (3) The LCM of 12, 18, 21, 30

2	12	18	21	30
3	6	9	21	15
	2	3	7	5

$\therefore \text{LCM} = 2 \times 3 \times 2 \times 3 \times 7 \times 5 = 1260$

\therefore The required number = $\frac{1260}{2} = 630$

30. (2) Let the initial quantity = 100



\therefore Initial price = $\frac{660}{120} \times 100 = 550$

Per article price = $\frac{550}{100} = ₹5.50$

31. (1) Let the numbers be a and b .

According to the question,

$$ab = 120 \quad \dots(i)$$

$$\text{and } a^2 + b^2 = 289 \quad \dots(ii)$$

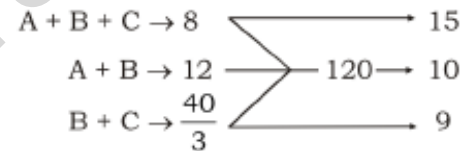
$$\therefore (a + b)^2 = a^2 + b^2 + 2ab$$

$$= 289 + 2 \times 120 = 289 + 240$$

$$= 529$$

$$\therefore a + b = \sqrt{529} = 23$$

32. (1)



Effi. of $A = 6$, $B = 4$, $C = 5$

Share of $A = \frac{6}{15} \times 6750 = \text{Rs. } 2700$

Share of $B = \frac{4}{15} \times 6750 = \text{Rs. } 1800$

Share of $C = \frac{5}{15} \times 6750 = \text{Rs. } 2250$

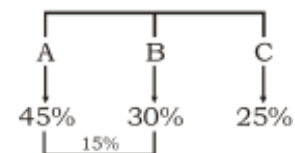
33. (3) After 10% discount

Price of watch = 648

\therefore 2nd discount

$$= \frac{648 - 550.8}{648} \times 100 = 15\%$$

34. (2)



\therefore B got $100 - (45 + 25) = 30\%$

ATQ,

15% \rightarrow 4500

\therefore Total voters \rightarrow 30000.

35. (3) Akansha scored 25% = Failed by 60 marks
Vertika scores 50% = Passed by 50 more marks
∴ It's clear that 25% = 100 marks
100% = 400 marks
Pass marks = 160

$$\text{Required \%} = \frac{400-160}{160} \times 100 = 150\%$$

36. (1) C.S.A of cone = $\pi r l$
∴ $\frac{22}{7} \times 16 \times l = \frac{2992}{7} \Rightarrow 22 \times 16 \times l = 2992$
 $\Rightarrow l = \frac{2992}{22 \times 16} = 8.5 \text{ m}$

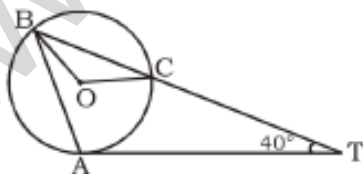
37. (3) $5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5}$
$$\therefore \frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 3 \cos \theta} = \frac{\frac{5 \sin \theta - 3 \cos \theta}{\cos \theta}}{\frac{5 \sin \theta + 3 \cos \theta}{\cos \theta}}$$

$$= \frac{5 \tan \theta - 3}{5 \tan \theta + 3} = \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3} = \frac{4 - 3}{4 + 3} = \frac{1}{7}$$

38. (2) $\cos^2 \alpha + \cos^2 \beta = 2$
 $= 1 - \sin^2 \alpha + 1 - \sin^2 \beta = 2$
 $= \sin^2 \alpha + \sin^2 \beta = 0$
 $= \sin \alpha = \sin \beta = 0$
 $= \alpha = \beta = 0$
∴ $\tan^3 \alpha + \sin^5 \beta = 0$

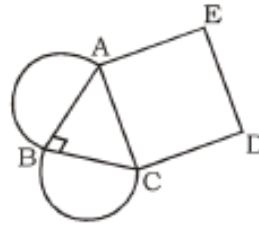
39. (1) Let the length of pipe be h cm, then its volume
 $= \pi r_1^2 h - \pi r_2^2 h = \pi h (r_1^2 - r_2^2)$
 $= \pi h (25^2 - 24^2) = 49\pi h \text{ cu. cm.}$
∴ $\pi r^2 h = 49\pi h \Rightarrow r^2 = 49$
∴ Diameter = 14 cm

40. (1)



$$\begin{aligned} \angle CAT &= 44^\circ, \angle BTA = 40^\circ \\ \angle ACT &= 180^\circ - 44^\circ - 40^\circ = 96^\circ \\ \angle CAT &= \angle CBA = 44^\circ \\ \angle BCA &= 180^\circ - 84^\circ - 44^\circ = 52^\circ \\ \therefore \text{Angle on Arc} &= BC = 2 \times 52^\circ = 104^\circ \end{aligned}$$

41. (2)



Let $AB = BC = x$
then $AC = \sqrt{2}x$
But $AC = \sqrt{128} = 8\sqrt{2} \text{ cm}$
 $\sqrt{2}x = 8\sqrt{2} \Rightarrow x = 8 \text{ cm}$
Areas of semicircles
 $= \frac{1}{2} \pi \left(\frac{x}{2}\right)^2 + \frac{1}{2} \pi \left(\frac{x}{2}\right)^2$
 $= \frac{1}{2} \pi (2 \times 16) = 16\pi \text{ cm}^2$

42. (3) $\frac{BE}{AB} = \sin 30^\circ = \frac{1}{2}$
 $\Rightarrow BE = \frac{1}{2} \times AB = 6 \text{ cm} = CF$

and $\frac{CF}{DF} = \tan 45^\circ = 1$
∴ $DF = CF = 6 \text{ cm}$

∴ $AE = \sqrt{12^2 - 6^2} = 6\sqrt{3} \text{ cm}$
 $AD = 6 + 6 + 6\sqrt{3} = 6(2 + \sqrt{3})$

Area of trapezium ADCB

$$= \frac{1}{2} \times (AD + BC) \times BE$$

$$= \frac{1}{2} \times [6(2 + \sqrt{3}) + 6] \times 6$$

$$= 3(2 + \sqrt{3} + 1) \times 6 = 18(3 + \sqrt{3}) \text{ cm}^2$$

43. (4) $\sin 2x = \frac{1}{5} = 1 + \sin 2x = 1 + \frac{1}{5} = \frac{6}{5}$
∴ $\sin^2 x + \cos^2 x + 2 \sin x \times \cos x = \frac{6}{5}$

$$= (\sin x + \cos x)^2 = \frac{6}{5}$$

$$= \sin x + \cos x = \sqrt{\frac{6}{5}}$$

44. (4) Since $x^3 + y^3 + z^3 - 3xyz$
 $= (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$
... (i)

$$\& (x + y + z)^2$$

$$= x^2 + y^2 + z^2 + 2(xy + yz + zx)$$

$$\Rightarrow (10)^2 = 30 + 2(xy + yz + zx)$$

$$\Rightarrow 2(xy + yz + zx) = 100 - 30 = 70$$

From (i),

$$x^3 + y^3 + z^3 - 3xyz = 10(30 - 35) = -50$$

45. (1) $\sqrt{8} + 2\sqrt{32} - 3\sqrt{128} + 4\sqrt{50}$
 $= 2\sqrt{2} + 8\sqrt{2} - 3 \times 8\sqrt{2} + 4 \times 5\sqrt{2}$
 $= 2\sqrt{2} + 8\sqrt{2} - 24\sqrt{2} + 20\sqrt{2}$
 $= (2 + 8 - 24 + 20)\sqrt{2}$
 $= 6\sqrt{2} = 6 \times 1.414 = 8.484$
46. (1) Percentage of money spent on Tennis
 $= \left(\frac{45}{360} \times 100 \right) \% = 12\frac{1}{2} \%$
47. (4) Let the total spendings on sports be Rs. x.
 Then,
 Amount spent on Golf
 $= \text{Rs.} \left(\frac{36}{360} \times x \right) = \text{Rs.} \frac{x}{10}$
 Amount spent on Hockey
 $= \text{Rs.} \left(\frac{63}{360} \times x \right) = \text{Rs.} \frac{7}{40} x$
 Difference = $\text{Rs.} \left(\frac{7}{40} x - \frac{x}{10} \right) = \text{Rs.} \frac{3x}{40}$
 \therefore Required percentage
 $= \left[\frac{\left(\frac{3x}{40} \right)}{\left(\frac{x}{10} \right)} \times 100 \right] \% = 75\%$
48. (3) Let the total spendings on sports be Rs. x.
 Then,
 Amount spent on Cricket
 $= \text{Rs.} \left(\frac{81}{360} \times x \right) = \text{Rs.} \left(\frac{9}{40} x \right)$
 Amount spent on Football
 $= \text{Rs.} \left(\frac{54}{360} \times x \right) = \text{Rs.} \left(\frac{3}{20} x \right)$
 Difference = $\text{Rs.} \left(\frac{9}{40} x - \frac{3}{20} x \right) = \text{Rs.} \frac{3}{40} x$
 \therefore Required percentage
 $= \left[\frac{\left(\frac{3x}{40} \right)}{\left(\frac{9x}{40} \right)} \times 100 \right] \% = 33\frac{1}{3} \%$
49. (2) Amount spent on Cricket and Hockey together
 $= \text{Rs.} \left[\frac{(81 + 63)}{360} \times 2 \right] \text{ crores} = \text{Rs.} 0.8 \text{ crores}$
 $= \text{Rs.} 80,00,000$
50. (1) Amount spent on Basketball exceeds that on Tennis by:

$$= \text{Rs.} \left[\frac{(50 - 45)}{360} \times 18000000 \right] = \text{Rs.} 2,50,000$$

51. (2) The negative form of simple past tense takes V_1 in it. Hence, replace 'told' by 'tell'.
52. (2) As the sentence is in past form, replace 'is' by 'was'.
53. (2)
54. (3)
55. (1)
56. (4)
57. (2)
58. (3)
59. (1)
60. (1)
61. (3)
62. (2)
63. (2)
64. (3) Though SSC had given option (3) as the answer, it means the same. No improvement is hence the answer.
65. (4) When 'used to' is preceded by a verb, it means 'habitual of'. Here 'used to' is followed by ' $V_1 + \text{ing}$ '.
66. (3) 'Everybody' is singular and will take singular verb 'depends'.
67. (3) 'Not only but also' is a correlative.
68. (3)
69. (2)
70. (4)
71. (2)
72. (1)
73. (3)
74. (3)
75. (2)
76. (1) 'Antara' is an Indonesian news agency organized as a private company under the Ministry of State-owned Enterprises. It is the country's national news agency, supplying news reports to the many domestic media organization. It is the only organization authorized to distribute news material created by foreign news agencies.
77. (2)
78. (2) Catalyst is a substance that increases the rate of a chemical reaction without undergoing any permanent chemical change in itself.
79. (3) The basic aim of Black Revolution is to increase the amount of Crude Oil (Petroleum) production. With this plan, the Government of India plans to accelerate

- the production of ethanol and to mix it up with petrol (up to 10%) and produce bio-diesel.
80. (4)
81. (3)
82. (1)
83. (4)
84. (2)
85. (1)
86. (2) The Rights of the Child was adopted by the General Assembly on 20 th November 1959 and recognized in the Universal Declaration of Human Rights.
87. (2) A tough, semitransparent substance that is the main component of the exoskeletons of arthropods, such as the shells of crustaceans and the outer coverings of insects. Chitin is a carbohydrate and is found in the cell walls of certain fungi and algae.
88. (1) The Amaltas (botanical name is Cassia fistula), Indian Laburnum Tree is a very valuable medicinal tree and has been used in Ayurveda as a gentle laxative, which can be taken safely even by children and expectant mothers.
89. (1) Urease is an enzyme that catalyzes the hydrolysis of urea, forming ammonia and carbon dioxide. Found in large quantities in jack beans, soybeans and other plant seeds, it also occurs in some animal tissues and intestinal microorganisms. Urease is significant in the history of enzymology as the first enzyme to be purified and crystallized (by James B. Sumner in 1926). This achievement laid the groundwork for the subsequent demonstration that urease and other enzymes are proteins.
90. (1)
91. (3) Political sovereignty is sometimes called supreme will. It includes control of a specific state granted through a constitution or other enabling law and carried out through an established government.
92. (1) Dr. Manmohan Singh led the India delegation to the first world conference on human right. The World Conference on Human Rights was held by the United Nations in Vienna, Austria, on 14 to 25 June 1993.
93. (2) The Merino is an economically influential breed of sheep prized for its wool. Its wool was already very highly valued in the Middle Ages. Today, Merinos are regarded as having some of the finest and softest wool of any sheep.
94. (1)
95. (3) The High Yielding Variety Programme (HYVP) was launched in the Kharif of 1966-67 with an objective to attain self-sufficiency in food by 1970-71. The core philosophy of the programme was to increase the productivity of food grains by adopting latest varieties of inputs of crops. The Farmers were extended finance through a relaxed mechanism by the Reserve Bank of India through the Central Cooperative Banks. This programme in the 4th five year plan was a major breakthrough and a turning point in the history of agriculture development in India.
96. (4) Gastrin is a peptide hormone that stimulates secretion of gastric acid (HCl) by the parietal cells of the stomach and aids in gastric motility. It is released by G cells in the pyloric antrum of the stomach, duodenum and the pancreas.
97. (4) The gravity of the Sun keeps the planets in their orbits. They stay in their orbits because there is no other force in the Solar System which can stop them.
98. (4) World No Tobacco Day (WNTD) is observed around the world every year on May 31. It is intended to encourage a 24-hour period of abstinence from all forms of tobacco consumption around the globe. The day is further intended to draw attention to the widespread prevalence of tobacco use and to negative health effects, which currently lead to nearly 6 million deaths each year worldwide, including 600,000 of which are the result of non-smokers being exposed to second-hand smoke.
99. (1)
100. (4)