SSC Test Series -25. Solution

(New Pattern)

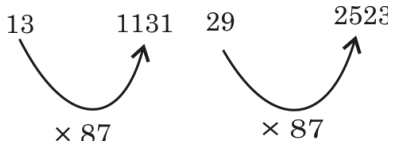
1	C	26	D	51	C	76	C
2	D	27	C	52	A	77	B
3	A	28	B	53	B	78	A
4	B	29	C	54	A	79	D
5	D	30	D	55	A	80	A
6	B	31	A	56	D	81	C
7	D	32	C	57	A	82	D
8	C	33	A	58	A	83	B
9	D	34	C	59	C	84	D
10	C	35	B	60	B	85	A
11	B	36	B	61	D	86	C
12	A	37	A	62	A	87	B
13	A	38	D	63	B	88	B
14	C	39	B	64	B	89	B
15	C	40	C	65	C	90	A
16	C	41	B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

REASONING ABILITY

1. (c) Tiger is the national animal of India and snow leopard is the national animal of Afghanistan.

2. (d) Adam Smith is called father of economics where as A. Lavoisier is father of (Modern) Chemistry

3. (a)



4. (b) A maccasin is a type of shoe and an Aspis is a type of snake.

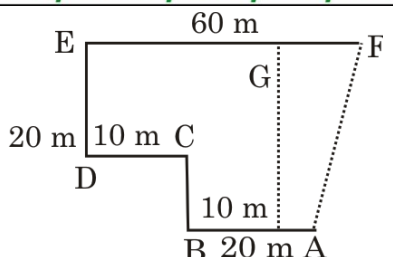
5. (d) Feta is a Greek cheese and provolone is an Italian cheese.

6. (b)Zail singh was the President of India whereas rest three were the Prime Ministers of India.

7. (d) Except Ian chappell, others are captain of England test Cricket Team whereas Ian Chappell is an australian captain.

8. (c) Except Nose, rest are in pairs.

9. (d)



The movements of the person are from A to F, as shown in figure, Clearly, the final position is F which is to the North-East of the starting point A

10. (c) D O C U M E N T A T I O N
1 2 3 4 5 6 7 8 9 10 11 12 13

11. (b) a b c d/ a b b c d/ a b c c c d/ c d d d d.

12. (a) Required answer =400/4-3 =97 times.

13. (c) Clearly, F is the maternal uncle of D means F is the brother of C. C is the sister of B. So, F is the brother of B who is A's mother. Thus, F is the maternal uncle of . So, A and D are the nephews of F. i.e. F has two nephews.

14. (c)

15. (c)As given,

14+2=7

It means '+' = '÷'

So, $\sqrt{5+5+5+5+5}$

$=\sqrt{5\div5\div5\div5\div}$

$=\sqrt{5\times\frac{1}{5}\times\frac{1}{5}\times\frac{1}{5}\times\frac{1}{5}}$

$=\frac{1}{5}\times\frac{1}{5}\sqrt{5}$

$=\frac{1}{25}\times\sqrt{5}=\frac{2.2360}{25}$

= 0.089

16. (c) 4×1-2=2

2×3-2=2

2×3-2=4

4×4-2=14

=14×5-2=68

17. (b) 3×2+3=9

9×3+2=29

29×2+3=61

61×3+2=185

185×2+3=375

18. (c) $15+1^3=16$

$16+2^3=24$

$22+3^3=51$

19. (d)

20. (d) We have 30 rectangles and 5 hexagons in the given figure.

21. (d)

22. (b) No of consonants No of vowels

JITENDRA	5	$3 \Rightarrow 5^2 - 3^2 = 16$
DHARMENDRA	7	$3 \Rightarrow 7^2 - 3^2 = 40$
SHAHRUKH	6	$2 \Rightarrow 6^2 - 2^2 = 32$
SALMAN	4	$2 \Rightarrow 4^2 - 2^2 = 12$

23. (a)As it is clear from the description 'b' lies opposite 'd', 'c' lies opposite 'a' and 'f' lies opposite 'e' . So, when 'c' is at the top, 'a' will be at the bottom.

24.(*)

25. (b)

QUANTITATIVE APTITUDE

26. (B) The required remainder = $d_1 \times r_2 + r_1$

where, d_1 = the first divisor = 12

r_1 = the first remainder = 4

r_2 = the second remainder = 6

$\therefore$ The required remainder = 12 × 6 + 4

= 76

27. (B) Oder of surds are 4, 3, 2. LCM of 4, 3, and 2 is 12.

So, convert each surd into a surd order 12

$\sqrt[4]{10} = \sqrt[12]{(10)^3} = \sqrt[12]{1000}$

$\sqrt[3]{6} = \sqrt[12]{(6)^4}\ \sqrt[12]{1296}$

$\sqrt{3} = \sqrt[12]{(3)^6} = \sqrt[12]{729}$

$\sqrt[3]{6} > \sqrt[4]{10} > \sqrt{3}$

28. (C) Number of one digit pages from 1 to 9 = 9

Number of two digit pages from 10 to 99 = 90

Number of three digit pages from 100 to 200 = 101

$\therefore$ Total number of required figures

= (9 × 1) + (90 × 2) + (101 × 3) = 492

29. (B)

30. (D) LCM of 3, 5, 6, 8, 10 and 12 = 120

Required number = 120 K + 2 ; K is a positive integer.

$$\begin{array}{r|l} 120 & 9 \\ & \\ 117 & \\ \hline 3 & \end{array}$$

120 K + 2 = (13 × 9 + 3) K + 2

= (13 × 9 × K) + (3K + 2)

For every value of K, (13 × 27 × K) is always divisible by 31.

Putting value of K equal to 1, 2, 3, 4, ….. etc.

In succession, we find that number 8.

Least value of K which will make (3K + 2) divisible by 13 is 32.

$\therefore$ The required number = 120 × 8 + 2

= 960 + 2

= 962

31. (A) B's profit = $\text{Rs.}\frac{235-45}{2} = \text{Rs.}95$

A's profit = Rs. 95 + 45 = Rs. 95

A's profit per month = Rs. $\frac{140}{3}$

B's profit per month = Rs. $\frac{95}{4}$

Their capitals are proportional to their profit,

A's capital : B capital $= \frac{140}{3} : \frac{95}{4}$

= 112 : 57

Difference between their capitals

= 112 – 57 = 55, but the actual difference is 550.

A's capital $= 112 \times \frac{550}{55} = \text{Rs.}1120$

32. (A) House containing only one person

= 100 – 40 = 60%

Houses containing only a male

$= 60 \times \frac{20}{100} = 12\%$

Houses containing only one female

= 60 – 12 = 48%

33. (B) Ratio of parts

$= \frac{1}{100+2\times5} : \frac{1}{100+3\times5} : \frac{100}{100+4\times5}$

$\frac{1}{100} : \frac{1}{115} : \frac{1}{120}$

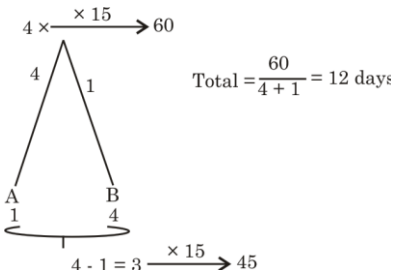
$= 276 : 264 : 253 = 793\ \frac{95}{4}\underline{177930}$

Difference between greatest and smallest

= (276 – 253) × 10 = Rs. 230

34. (A) S is 4 times as fast as B.

It means if A does a work in 1 day then B will do in 4 days.



$4 - 1 = 3 \times \underline{15}\ 45$

35. (D) Payment is quarterly, so, r = 4%, t = 8 years

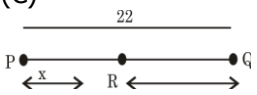
Required answer

$= \frac{100 \times 2280}{100 \times 8 + \frac{8 \times 7 \times 4}{2}}$

$= \frac{2280 \times 100}{912}$

$= \text{Rs.}250$

36. (C)



Time taken by to reach R from P = Time taken by B to Reach Q and return from Q to R

$$\Rightarrow \frac{x}{5} = \frac{22}{6} + \frac{22-x}{6}$$

$$\Rightarrow \frac{x}{5} + \frac{x}{6} = \frac{22}{6} + \frac{22}{6}$$

$$\Rightarrow \frac{11x}{30} = \frac{22}{3}$$

$$\Rightarrow x = 20 \text{ km}$$

37. (A) Let the distance between Delhi and Kanpur is x. Let train leaving from Delhi is A and from Kanpur is B.

A's speed = $\frac{x}{10am - 5am} = \frac{x}{5}$ km / hour

B's speed = $\frac{x}{2pm - 7am} = \frac{x}{7}$ km / hour

Distance covered by A till 7 am $= \frac{2x}{5}$ km

Remaining Distance = $x - \frac{x}{5} = \frac{3x}{5}$ km

Relative speed $= \frac{x}{5} + \frac{x}{7} = \frac{12x}{35}$ km / hour

Time taken by both trains to cover the distance

$$\frac{\frac{3}{5}x}{\frac{12x}{35}} = \frac{7}{4} \text{hours} = 1\text{hours } 45 \text{ min}$$

$\therefore$ The two trains will meet at 7 am + 1 hour 45 min = 8 : 45 am

38. (D) Take $\theta = 45°$

x = 1 + 1 = 2

$$y = \sqrt{2} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$\left(x^2y\right)^{\frac{2}{3}} - \left(xy^2\right)^{\frac{2}{3}}$$

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

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

= 2 – 1

= 1

39. (D) $z = \frac{\sqrt{1+\sin x} + \sqrt{1-\sin x}}{\sqrt{1+\sin x} - \sqrt{1-\sin x}}$

$$\Rightarrow \frac{\left(\sqrt{1+\sin x} + \sqrt{1-\sin x}\right)}{\left(\sqrt{1+\sin x} - \sqrt{1-\sin x}\right)} \times \frac{(\sqrt{1+\sin x} + \sqrt{1-\sin x})}{(\sqrt{1+\sin x} - \sqrt{1-\sin x})}$$

$$\Rightarrow z = \frac{1+\sin x + 1 - \sin x + 2\sqrt{1+\sin x} \times \sqrt{1-\sin x}}{1+\sin x - 1 + \sin x}$$

$$\Rightarrow z = \frac{2 + 2\sqrt{1+\sin x} \times \sqrt{1-\sin x}}{2\sin x}$$

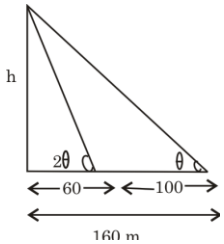
$$\Rightarrow z = \frac{1 + \sqrt{1 - \sin^2 x}}{\sin x}$$

$$\Rightarrow z = \frac{1 + \sqrt{\cos^2 x}}{\sin x}$$

$$\Rightarrow z = \frac{1 + \cos x}{\sin x}$$

$$\Rightarrow z = \text{cosec } x + \cot x$$

40. (A)



$$\tan\theta = \frac{h}{160}$$

$$\tan 2\theta = \frac{h}{60}$$

$$\tan 2\theta = \frac{2\tan\theta}{1 - \tan^2\theta}$$

$$\Rightarrow \frac{h}{50} = \frac{2 \times \frac{h}{160}}{1 - \left(\frac{h}{160}\right)}$$

$$\Rightarrow \frac{80}{60} = \frac{1}{1 - \left(\frac{h}{160}\right)^2}$$

$$\Rightarrow 1 - \left(\frac{h}{160}\right)^2 = \frac{60}{80}$$

$$\Rightarrow \left(\frac{h}{160}\right)^2 = \frac{1}{4}$$

$$\Rightarrow \frac{h}{160} = \frac{1}{2}$$

$$\Rightarrow h = 80 \text{ m}$$

41. (C) $x^{x\sqrt{x}} = (x\sqrt{x})^x$

$\Rightarrow x^{x^{3/2}} = \left(x^{\frac{3}{2}}\right)^x$

$\Rightarrow x^{x^{3/2}} = x^{\frac{3}{2}x}$

By comparing

$x^{\frac{3}{2}} = \frac{3}{2}x$

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

$\Rightarrow x = \frac{9}{4}$

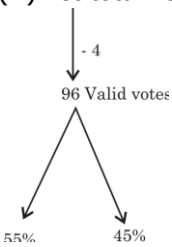
42. (B) If $x^2 + y + z, y^2 = z + x, z^2 = x + y$

Now, $\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}$

$= \frac{x}{x^2+x} + \frac{y}{y^2+y} + \frac{z}{z^2+z}$

$= \frac{x}{x+y+z} + \frac{y}{y^2+y} + \frac{z}{x+y+z} = 1$

43. (D) Let total votes = 100

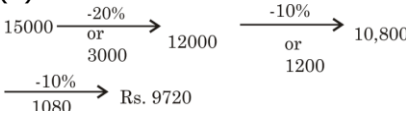


$55\% - 45\% = 10\%$ of $96 \rightarrow 240$

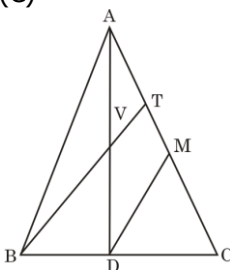
$100 \rightarrow \frac{240}{96 \times 10} \times 100 \times 100$

$= 2500$ votes

44. (A)



45. (C)



AT = 6 (given)

$\Delta AVT \sim \Delta ADM$

$\frac{AV}{AD} = \frac{AT}{AM}$

$\frac{1}{2} = \frac{6}{AM}$

$\Rightarrow AM = 12$

$\therefore TM = 6$

$\Delta CDM \sim \Delta CBT$

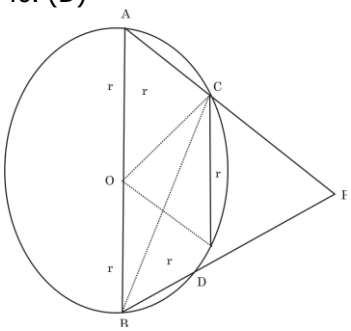
$\frac{CD}{BD} = \frac{CM}{TM}$

$\Rightarrow \frac{1}{1} = \frac{CM}{6}$

$\Rightarrow CM = 6$

$= 6 + 6 = 12$

46. (D)



ΔOCD is equilateral triangle.

$\angle COD = 60°$

$\therefore \angle CBD = 30°$ (angle form by chord to circumference is

Half of form by chord to centre.)

$\therefore \angle ACB = 90°$

$\therefore \angle BCP = 180° - 90°$

In ΔCBP

$\angle BCP + \angle CBP + \angle CPB = 180°$

$\Rightarrow 90° + 30° + \angle CPB = 180°$

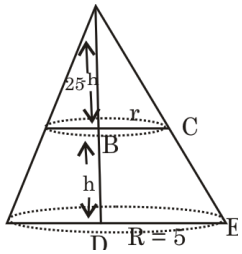
$\Rightarrow \angle CPB = 60°$

and $\angle APB = 60°$

47. (D) R = 5 cm

H = 25 cm

$\Delta ABC \sim \Delta ADE$



$\Rightarrow 25 - h = 5r$

$\Rightarrow h = 25 - 5r$

Volume of frustrum $= \frac{1}{3}\pi h(R^2 + r^2 + Rr)$

$110 = \frac{1}{3} \times \frac{22}{7} \times (25 - 5r)(25 + r^2 + 5r)$

$\Rightarrow 21 \times 5 = (25 - 5r)(25 + r^2 + 5r)$

$\Rightarrow 21 = (5 - r)(25 - r^2 + 5r)$

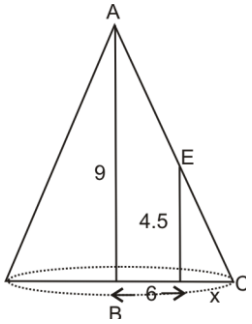
$\Rightarrow 21 = 5^3 - r^3$

$\Rightarrow 21 = 125 - r^3$

$\Rightarrow r^3 = 104$

$\Rightarrow r = \sqrt[3]{104}$ cm

48. (A)



$\Delta ABC \sim \Delta EDC$

$\frac{9}{4.5} = \frac{6 + x}{x}$

$2x = 6 + x$

$x = 6$

$BC = 12$ cm

$l = AC = \sqrt{AB^2 + BC^2}$

$= \sqrt{81 + 144}$

$= \sqrt{225}$

$= 15$m

Lateral surface area = πrl

$= \frac{22}{7} \times 12 \times 15$

$= 565.7\ m^2$

49. (D) Percentage variation in

Model A $= \frac{40 - 30}{30} \times 100 = 33\frac{1}{3}\%$

Model B $= \frac{20 - 15}{15} \times 100 = 33\frac{1}{3}\%$

Model C $= \frac{20 - 15}{15} \times 100 = -25\%$

50. (C) Required answer

$= 35 \times \frac{10}{100} \times \frac{15}{100} + 44 \times \frac{10}{100} \times \frac{15}{100}$

$= \frac{150}{10000} \times 79 = 1.1850$ lakhs

= Rs. 1,18,500