

**SSC CGL - 180728 GRAND TEST**  
**HINTS AND SOLUTIONS**

**ANSWER KEY**

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

1. (3)
2. (3)  $14 \times 14 \times 2 = 392$   
 $14 \times 2 = 28$   
Similarly,  
 $19 \times 19 \times 2 = 722$   
 $19 \times 2 = 38$
3. (4) Ecstasy is opposite of Gloom, Similarly, Humiliation is opposite of exaltation.
4. (2)  $P \xrightarrow{+1} Q \xrightarrow{+7} X \xrightarrow{+2} Z$   
 $B \xrightarrow{+1} C \xrightarrow{+14} Q \xrightarrow{-3} N$   
 $A \xrightarrow{+1} B \xrightarrow{+2} D \xrightarrow{+2} F$   
 $M \xrightarrow{+1} N \xrightarrow{+2} P \xrightarrow{+2} R$

1

5. (2) The number 841 is a perfect square.  
 $841 = 29 \times 29$
6. (3) The numbers given in the set are perfect squares.  
 $4 = (2)^2$ ;  $25 = (5)^2$ ;  $81 = (9)^2$   
Similarly,  $16 = (4)^2$ ;  $64 = (8)^2$ ;  $100 = (10)^2$

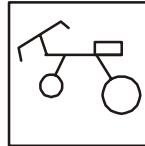
7. (2)

8. (2)
- $ac \boxed{a}c / ab \boxed{a}b / aca \boxed{c} / aba \boxed{b} / aca \boxed{c}$

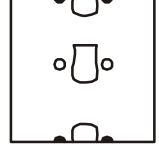
9. (3) 10. (1)

11. (2)

12. (2)



13. (3)



14. (1) Two days before yesterday was Monday.  
Therefore, today is Monday + 4 = Friday  
Tomorrow will be Saturday  
Day after Tomorrow will be Sunday  
Now, three days after Sunday will be Thursday.

15. (1) 1st January was Friday.  
First Wednesday  $\Rightarrow$  6th January  
Fourth Wednesday  $\Rightarrow$  27th January  
Three days after January 27  $\Rightarrow$  30th January

16. (4)

18. (3)  $5 + 5 = 2 + 8$ 

$3 + 7 = 6 + 4$

$6 + ? = 9 + 9$

$\therefore ? = 18 - 6 = 12$

19. (4) From the two different views of the dice it is clear that '6' lies opposite to '5'.

20. (4) The number '4' is present only in rectangle.

21. (4) None of the assumptions is implicit in the statement.  
The statement implies that industrious people are rich.

22. (2)

23. (1)

24. (4) M is mother of T and wife of P. Therefore, P is son-in-law of K.

25. (3)  $J = 10 \Rightarrow$  Position number in English alphabetical series.

51. (2) Let the speed of the cars be  $S_1$  and  $S_2$

$$= S_1 - S_2 = \frac{70}{7} = 10 \quad \dots(1)$$

$$\text{And } S_1 + S_2 = \frac{70}{1} = 70 \quad \dots(2)$$

From eq. (1) and (2)

$S_1 = 40 \text{ km/hr, } S_2 = 30 \text{ km/hr}$

 $\Rightarrow$  Required speeds are 40 km/hr and 30 km/hr.

52. (1) Let one number is x.

According to the questions,

$x + y = 40$

$xy = 375$

$$\Rightarrow \frac{1}{x} + \frac{1}{y} = \frac{y+x}{xy} = \frac{40}{375} = \frac{8}{75}$$

53. (2) By options, only (b) is the same answer.

$$(8 + 2) + (7 - 2) + (10 \times 2) + \left(\frac{20}{2}\right)$$

$$= 10 + 5 + 20 + 10 = 45 \text{ (hence proved)}$$

54. (4) Smallest number in case of decimal = 0.001.

$$55. (1) \left[ \left\{ -\frac{1}{2} \right\}^{-2} \right]^{-1} = \left\{ \left( -\frac{1}{2} \right)^2 \right\}^{-2 \times -1}$$

$$= \left( -\frac{1}{2} \right)^{2 \times 2} = \left( -\frac{1}{2} \right)^4 = \frac{1}{16}$$

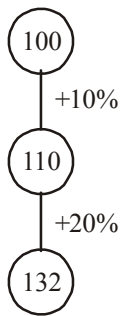
56. (4) 90% of A = 30% of B

$$90A = 30B$$

$$\Rightarrow B = 3A \quad \dots(1)$$

$$B = \frac{2x}{100} \times A \Rightarrow 3A = \frac{2x}{100} \times A \Rightarrow x = 150$$

57. (4) Let the original price = 100 units



According to the question, 132 units = Rs. 33

$$1 \text{ unit} = \text{Rs. } \frac{33}{132}$$

$$100 \text{ units} = \text{Rs. } \frac{33}{132} \times 100 = \text{Rs. } 25$$

58. (3) Decrease in area =  $\frac{x^2}{100} \% = \frac{(10)^2}{100} = 1\%$

59. (4) According to question,

	Old		New
Price	5	$\xrightarrow{20\% \text{ increase}}$	6
Consumption	6	$\xrightarrow{\text{Decrease}}$	5
Expenditure	30		30

$$\% \text{ decrease} = \frac{1}{6} \times 100 = 16 \frac{2}{3} \%$$

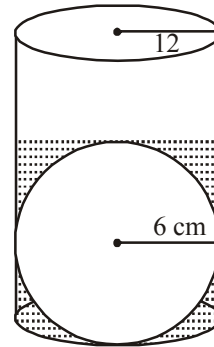
60. (3) According to question,

$$\begin{aligned} \text{CP} &= 30 \times 9.50 + 30 \times 8.5 \\ &= 30 [9.5 + 8.5] = 30 \times 18 = \text{Rs. } 540 \end{aligned}$$

$$\text{SP} = 60 \times 8.90 = \text{Rs. } 534$$

$$\text{Loss} = \text{CP} - \text{SP} = 540 - 534 = \text{Rs. } 6$$

61. (2)



Let the increase in height = 4 cm

$$\Rightarrow \pi R^2 h = \frac{4}{3} \pi r^3$$

$$\Rightarrow (12)^2 \times h = \frac{4}{3} \times 6^3$$

$$\Rightarrow h = \frac{4}{3} \times \frac{216}{144} = 2 \text{ cm}$$

62. (1) Let the required increase = x cm

$$\Rightarrow \pi(10+x)^2 \times 4 = \pi \times 10^2 \times (4+x)$$

$$\Rightarrow 100 + x^2 + 20x = 25(4+x)$$

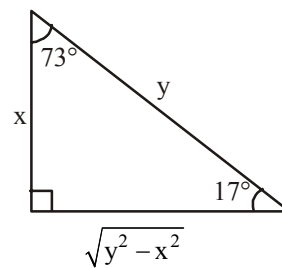
$$\Rightarrow x^2 + 20x + 100 = 100 + 25x$$

$$\Rightarrow x^2 - 5x = 0 \Rightarrow x - 5 = 0 \Rightarrow x = 5$$

63. (3) Let the radius of base of second cylinder = R

$$\Rightarrow 2(\pi r^2 h) = \pi R^2 h \Rightarrow 2r^2 = R^2 \Rightarrow R = r\sqrt{2}$$

$$64. (2) \sin 17^\circ = \frac{x}{y} \Rightarrow \frac{P}{H}$$



$$\Rightarrow \sec 17^\circ - \sin 73^\circ$$

$$= \frac{y}{\sqrt{y^2 - x^2}} - \frac{\sqrt{y^2 - x^2}}{y}$$

$$= \frac{y^2 - (y^2 - x^2)}{(y)(\sqrt{y^2 - x^2})} = \frac{y^2 - y^2 + x^2}{y\sqrt{y^2 - x^2}} = \frac{x^2}{y\sqrt{y^2 - x^2}}$$

**Grand Test : CGL-180728**

65. (4) It is clear from the graph.  
Minimum sales in 1989 is 55 lakh bottles.  
66. (1) Average annual sales during 1988-1993.

$$\text{Cool up} = \frac{25+6+19+15+25+30}{6} = \frac{120}{6}$$

$$\text{Pep up} = \frac{30+35+30+25+20+20}{6} = \frac{160}{6} = 26\frac{2}{3}$$

lakh bottles

67. (2) Sales of pep-up -  
Year 1989 = 35 lakh bottles  
Year 1990 = 30 lakh bottles  
∴ Required percent

$$= \frac{35-30}{35} \times 100 = \frac{100}{7} = 14.28 \approx 14$$

68. (2)  $a \sin \theta + b \cos \theta = c$  ... (1)  
Let  $a \cos \theta - b \sin \theta = x$  ... (2)

Squaring and adding equation (1) and (2)  
 $(a \sin \theta + b \cos \theta)^2 + (a \cos \theta - b \sin \theta)^2 = c^2 + x^2$   
 $\Rightarrow a^2 + b^2 = c^2 + x^2$

$$\Rightarrow x = \pm \sqrt{a^2 + b^2 - c^2}$$

69. (1)  $\tan 15^\circ \cot 75^\circ + \tan 75^\circ \cot 15^\circ$   
 $= \tan 15^\circ \cdot \cot(90^\circ - 15^\circ) + \tan(90^\circ - 15^\circ) \cdot \cot 15^\circ$  74. (3)  
 $= \tan^2 15^\circ + \cot^2 15^\circ$  ... (1)

$$\cot 15^\circ = 2 + \sqrt{3}$$

Put value in eq. (1)

$$\tan^2 15^\circ + \cot^2 15^\circ = (2 - \sqrt{3})^2 + (2 + \sqrt{3})^2$$

$$= 4 + 3 - 4\sqrt{3} + 4 + 3 + 4\sqrt{3} = 14$$

70. (4)  $xy + yz + zx = 0$

$$\therefore xy + zx = -yz$$

$$\Rightarrow xy + yz = -zx$$

$$\Rightarrow yz + zx = -xy$$

$$\therefore \frac{1}{x^2 - yz} + \frac{1}{y^2 - zx} + \frac{1}{z^2 - xy}$$

Putting value of  $-yz, -zx, -xy$  from above

$$= \frac{1}{x^2 + (xy + zx)} + \frac{1}{y^2 + (xy + yz)} + \frac{1}{z^2 + (yz + zx)}$$

$$= \frac{1}{x(x + y + z)} + \frac{1}{y(x + y + z)} + \frac{1}{z(x + y + z)}$$

$$= \frac{1}{x + y + z} \left( \frac{1}{x} + \frac{1}{y} + \frac{1}{z} \right)$$

$$= \frac{1}{x + y + z} \left( \frac{zy + xz + xy}{xyz} \right) = \frac{1}{x + y + z} \times 0 = 0$$

71. (3) 203, 213, 223, 233, 243, 253, 263, 273, 283, 293

Total 10 inegers.

300 to 399 - Total no. of integers = 100

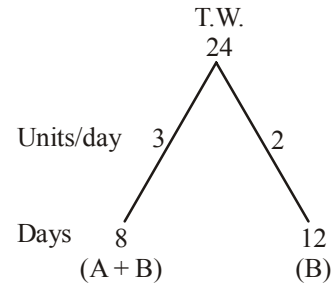
∴ Total no. of integers = 100 + 10 = 110.

72. (2) Let no. of persons be 'N'.

$$\Rightarrow \frac{N \times 55}{1} = \frac{(N + 6) \times 44}{1}$$

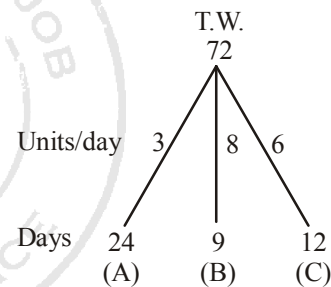
$$\Rightarrow 5N = 4N + 24 \Rightarrow N = 24$$

73. (3)



B's one day work = 2 units/day  
A's one day work = 3 - 2 = 1 unit/day  
4 days work of B = 4 × 2 units/day = 8 units  
Work left = 24 - 8 = 16 units  
A will complete the remaining work in

$$\frac{16 \text{ units}}{1 \text{ unit/day}} = 16 \text{ days}$$



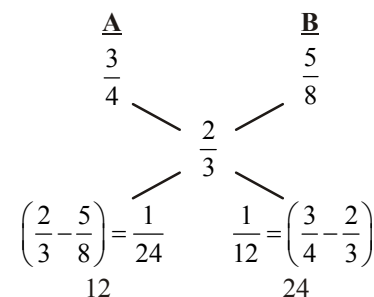
B and C start the work, in 3 days they will do  
(8 + 6) unit/day × 3 days = 42 units  
Work left = 72 - 42 = 30

$$\text{A will do in} = \frac{30}{3} = 10 \text{ days}$$

75. (1)

	Acid	Water
Vessel A	3	: 1
Vessel B	5	: 3

Use Alligation



Ratio of → 1 : 2