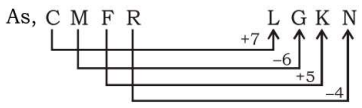
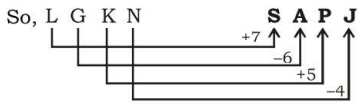
SSC CGL - GRAND TEST-2021-210005
HINTS AND SOLUTIONS

ANSWER KEY

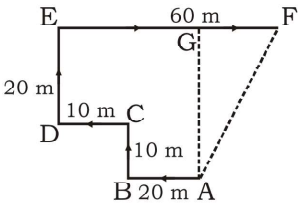
1	(2)	**26**	(1)	**51**	(3)	**76**	(3)
2	(3)	**27**	(3)	**52**	(3)	**77**	(2)
3	(2)	**28**	(4)	**53**	(3)	**78**	(2)
4	(2)	**29**	(3)	**54**	(1)	**79**	(3)
5	(3)	**30**	(1)	**55**	(2)	**80**	(1)
6	(2)	**31**	(4)	**56**	(1)	**81**	(2)
7	(4)	**32**	(2)	**57**	(1)	**82**	(2)
8	(4)	**33**	(4)	**58**	(1)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

1. (2) The number of players in football is 11 wheares in waterpolo, we have 7 players.
2. (3) Tiger is the national animal of India and snow leopard is the national animal of Afghanistan.
3. (2) 7! = 5040
   8! = 40320
4. (2) A moccasin is a type of shoe and an Aspis is a type of snake.
5. (3)



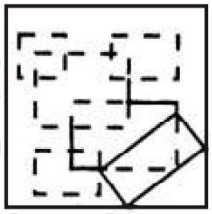


6. (2) Zail Singh was the President of India whereas rest three were the Prime Ministers of India.
7. (4) Except 1241, rest are the multiple of 13 where 1241, is a multiple of 17.
8. (4) Except D, the other letter can be drawn with the help of three lines whereas D requires 4 lines.
9. (4)



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. (4) On close observation, we find that figure contains figure (4) rotated through an angle of 135° as shown below:

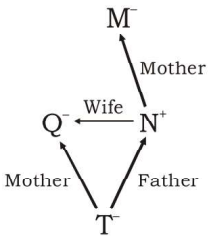


Hence, the answer is (D).

11. (1) Required answer $= \frac{400}{4} - 3 = 97$ times.

Here, 3 has been subtracted as 100, 200 and 300 was not a leap year.

12. (2)



So, B is incorrect.

13. (3)
14. (3) As given,
    14 + 2 = 7
    It means '+' = '÷'
    So, $\sqrt{5+5+5+5+5}$

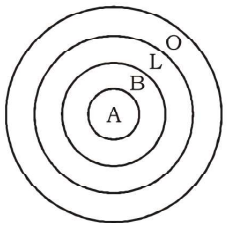
$$= \sqrt{5 \div 5 \div 5 \div 5 \div 5} = \sqrt{5 \times \frac{1}{5} \times \frac{1}{5} \times \frac{1}{5} \times \frac{1}{5}}$$

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

15. (2) $5 \times 1 - 2 = 3$
$3 \times 2 - 3 = 3$
$3 \times 3 - 4 = 5$
$5 \times 4 - 5 = 15$
$15 \times 5 - 6 = \mathbf{69}$

16. (3) $4 \times 1 - 2 = 2$
$2 \times 2 - 2 = 2$
$2 \times 3 - 2 = 4$
$4 \times 4 - 2 = 14$
$14 \times 5 - 2 = \mathbf{68}$

17. (3)



I. ✓
II. ✗
III. ✓
IV. ✗

Only I and III follows.

18. (2) $\sqrt[3]{3\times6\times12} = 6$
$\sqrt[3]{2\times20\times25} = 10$
$\sqrt[3]{2\times4\times64} = 8$

19. (1) $\frac{13+12+17}{7} = 6, \frac{6+9+13}{7} = 4,$
$\frac{12+14+9}{7} = 5, \frac{21+13+22}{7} = 8$

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

21. (1) Let the distance covered by taxi be x km.
Then, distance covered by car = (80 – x) km
$15x + 5(80 - x) = 500$
or, $15x + 400 - 5x = 500$
or, $10x = 100$
or, $x = 10$
$\therefore$ Distance covered by taxi = 10 km
Hence, the answer is (1).

22. (2)

23. (1) 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. (4) Let the number of bananas in the second bunch be x.
Then, number of bananas in the first bunch
$= x + \frac{1}{4}x = \frac{5}{4}x$

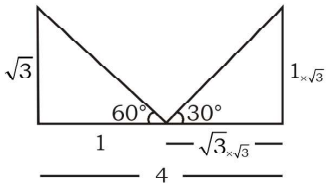
So, $\frac{5}{4}x - x = 3 \Rightarrow 5x - 4x = 12 \Rightarrow x = 12$

$\therefore$ Number of bananas in first bunch $= \left(\frac{5}{4}\times12\right) = 15$

25. (2)

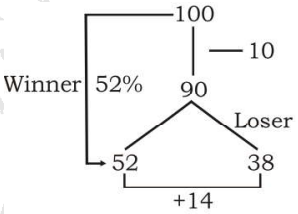
51. (3) Area of four wall = $2 \times h(l + b)$
$= 2 \times 5 (16 + 11) = 270 \text{ m}^2$
Total area of gate and windows
$= 2 \times 1 + 1 \times 0.75 \times 4 = 2 + 3 = 5 \text{ m}^2$
Area to be painted = $270 - 5 = 265 \text{ m}^2$
$\therefore$ Required cost = 265×2.50 = Rs. 662.5

52. (3)



ATQ,
$\because \sqrt{3} = 288 \text{ m}$ (given)
and eagle flies for 24 seconds
$\therefore$ speed of eagle $= \frac{288\times4}{\sqrt{3}\times24} = 16\sqrt{3} \text{ m/sec.}$

53. (3) Let the total votes be 100
ATQ,



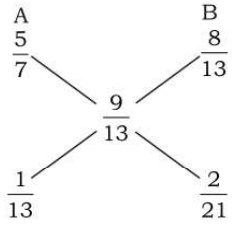
14 unit = (13200 – 2000)
$= \frac{11200}{14} = 800$
Votes polled for losing candidate
= 800 × 38 – 2000 (invalid votes) = 28400 votes.

54. (1) Simple interest for 3 years = 76.51 – 1.51 = Rs. 75
$\therefore$ Rate % $= \frac{75\times100}{1250\times3} = 2\%$

55. (2) $4\sin^2\theta + 6(1 - \sin^2\theta)$
$= 4\sin^2\theta + 6 - 6\sin^2\theta = 6 - 2\sin^2\theta$
Now put the value of $\theta = 90°$
$\therefore 6 - 2 = 4$

56. (1) C.P. of 30 kg = 30×9.50 = Rs. 285
C.P. of 40 kg = 40×8.50 = Rs. 340
Total C.P. of 70 kg = 285 + 340 = Rs. 625
S.P. of 70 kg = 70×8.90 = Rs. 623
Loss = Rs. 625 – Rs. 623 = Rs. 2

57. (1) From alligation-



Ratio of quantity taken from vessel

A and vessel B = $\frac{1}{13}:\frac{2}{91}=7:2.$

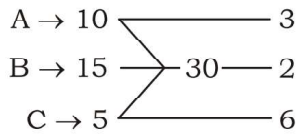
58. (1) $\because 4x=\sec\theta$ $\therefore x=\frac{\sec\theta}{4}$

and $\frac{4}{x}=\tan\theta$ $\therefore x=\frac{4}{\tan\theta}$

$$8\left(x^2-\frac{1}{x^2}\right)=8\left(\frac{\sec^2\theta}{16}-\frac{1}{\frac{16}{\tan^2\theta}}\right)$$

$$=8\left(\frac{\sec^2\theta}{16}-\frac{\tan^2\theta}{16}\right)=8\times\frac{1}{16}=\frac{1}{2}.$$

59. (2)



Total work by A + B in 4 min = 20
Total work by A + B & C in 1 min = – 1
∴ Total time taken by C to empty the tank

$=\frac{20}{1}=20$ min.

60. (1) x + y = 500 ...(1)

Loss % = $\frac{(20)^2}{100}=4\%$

Total loss = $\frac{500}{100}\times4=$ Rs.20

∴ Selling price = 500 – 20 = Rs. 480

61. (4) $\tan(4\theta-50°)=\cot(50°-\theta)$
$\tan(4\theta-50°)=\tan(90°-(50°-\theta))$
$\therefore 4\theta-50°=90°-(50°-\theta)$
$3\theta=90$
$\therefore \theta=30$

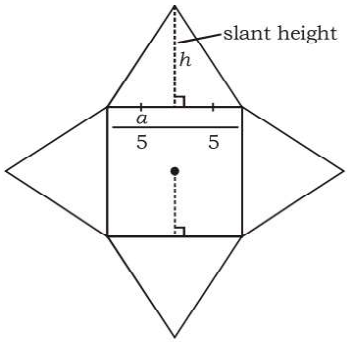
62. (2) Value of 1 radian = $\frac{180°}{\pi}$

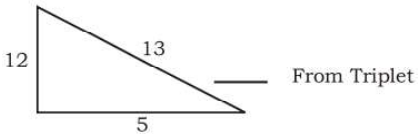
$$\therefore\left(\frac{1}{2}+\frac{1}{3}\right)\text{ radian}=\frac{180°}{\frac{22}{7}}\times\frac{5}{6}$$

$$=\frac{180°}{22}\times7\times\frac{5}{6}=\left(\frac{525}{11}\right)°$$

$\therefore$ Value of 3rd angle $=180°-\frac{525°}{11}=\frac{1455}{11}=132\frac{3°}{11}$

63. (2)





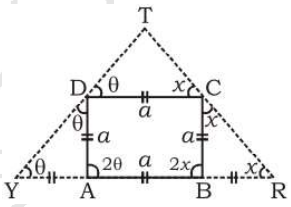
$\therefore$ S.A. $=\frac{1}{2}\times40\times12=240$ cm^2.

64. (3) Distance travelled by A

= 2 × distance b/w two points × $\left(\frac{a}{a+b}\right)$

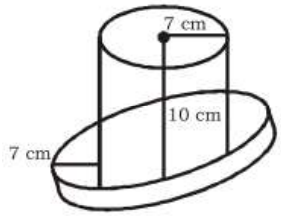
$=2\times21\times\frac{3}{7}=18$ kms.

65. (3)



$\because 2\theta+2x=180°$
$\therefore \theta+x=90°$
The value of $\angle T$ will be
$\angle T+\theta+x=180°$
$\Rightarrow \angle T+90°=180°\Rightarrow\angle T=90°.$

66. (3)



Area of the plateform
$\pi(r_0^2-r_i^2)$
$\pi r^2h=\pi(r_0^2-r_i^2)\times H$
$\Rightarrow 7^2\times10=(14^2-7^2)\times H$
$\Rightarrow\frac{49\times10}{21\times7}=H\Rightarrow H=\frac{10}{3}$ m.

67. (4) $\frac{x}{a}=(b-c), \frac{y}{b}=(c-a), \frac{z}{c}=(a-b)$

if $a + b + c = 0$ then $a^3 + b^3 + c^3 = 3abc$

$\therefore \frac{x}{a}+\frac{y}{b}+\frac{z}{c}=b-c+c-a+a-b=0$

and $\left(\frac{x}{a}\right)^3+\left(\frac{y}{b}\right)^3+\left(\frac{z}{c}\right)^3=\frac{3xyz}{abc}$

68. (4) $A = \tan 11° \tan 29°$
$= \tan(90° – 79°) ? \tan(90° – 61°)$
$= \cot 79° . \cot 61°$
$B = 2 \cot 61° . \cot 79°$
$\therefore B = 2A$

69. (3) $\frac{\frac{1}{2}(a+b+c)[(a-b)^2+(b-c)^2+(c-a)^2]}{(a+b+c)}$

$=\frac{1}{2}[(-4)^2+(-3)^2+(7)^2]=\frac{1}{2}\times 74=37.$

70. (1) ATQ,
$x^2 + 1 + 2x + y^2 + 1 – 2y + z^2 = 0$
$(x + 1)^2 + (y – 1)^2 + z^2 = 0$
$\therefore x = – 1, y = 1, z = 0$
Put the above value in equation-
$3x + 5y + 6z = 3 \times – 1 + 5 \times 1 + 6 \times 0 = – 3 + 5 = 2.$

71. (4) Number of students enrolled in College A in the year 2009 = 1000
$\therefore$ Number of students passed

$=1000\times\frac{80}{100}\times\frac{60}{100}=480$

72. (3) Reqd. number of students $=2290\times\frac{70}{100}=1603.$

73. (3) Average number of students enrolled in all colleges together in the year 2010 $=\frac{3770}{5}=754$

Average number of students enrolled in all colleges together in the year 2010 $=\frac{3090}{5}=618$

$\therefore$ Reqd. ratio = $\frac{754}{618}=\frac{377}{309}=377:309.$

74. (4) Number of students enrolled in College A in the year 2009 = 1000
Number of students enrolled in College B in the year 2011 = 650

$\therefore$ Reqd. % = $\frac{350}{650}\times 100=53.84\%\approx 54.$

75. (4) Total number of students in the year 2010 from all the colleges = 3090
$\therefore$ Reqd. number of students
= 10% of 3090 = 309.

76. (1) Replace 'will kill' by 'would kill'. The sentence is of conditional.

77. (3) Replace 'or' by 'nor', as 'neither' is followed by 'nor'.

78. (4)

79. (3) Replace 'isn't it' by 'didn't she?' as the question tag and the sentence must be in the same tense.

80. (1) Sentence starting with 'Not only' takes inversion form. Thus, it should be as 'not only did the bandit rob the person'. The structure may also be 'The bandit not only robbed .....'