SSC CGL - 170730 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1. (4) The relation is $\sqrt[3]{x} : (\sqrt[3]{x}+1)^3 + 1$.

Put x = 8, 27

For x = 8, result $= (\sqrt[3]{8}+1)^3 + 1$ = 27 + 1 = 28

For x = 27, result $= (\sqrt[3]{27}+1)^3 + 1$ = 64 + 1 = 65

2. (4) L O G I C
+1 +1 +1 +1 +1
K N F H B $\xrightarrow{\text{Reverse}}$ B H F N K

C L E R K
+1 +1 +1 +1 +1
B K D Q J $\xrightarrow{\text{Reverse}}$ **J Q D K B**

3. (3) Calendar is a list of dates whereas dictionary is a collection of words.

4. (1) U S P L
+1 +3 +3 +1
T P M K $\xrightarrow{\text{Reverse}}$ K M P T

L J G C
+1 +3 +3 +1
K G D B $\xrightarrow{\text{Reverse}}$ **B D G K**

5. (1) All except Taxi are pulled by living being.

6. (1) Second number = (First number)^2 /2, (2 - 4) is not following the same.

7. (4) All the pairs except (4) consist of prime number. 14 is not a prime number.

8. (1) Here, the answer will be the product of number of consonants and vowels in the given word.
So, required answer = 5 × 3 = 15.

9. (3) It is clear from the position of given die that the numbers 2, 3, 1 and 6 can't appear opposite to 4. So, it is clear that 5 appears opposite to 4. Since, in each of the die 4 appears on the top. So, 5 will be at the bottom of each die. Hence (3) is the right option.

10. (3) We have,

$$30\left(H - \frac{M}{5}\right) + \frac{M}{2} \text{ degree}$$

$$= 30\left(9 - \frac{25}{5} + \frac{25}{2}\right) \text{ degree}$$

= 30 × 4 + 12.5 degree = 132.5°

∴ Reflex angle = 360 – 132.5 = 227.5.

11. (3) $(6^2 + 3^2) - (4^2 + 2^2) = (36 + 9) - (16 + 4) = 45 - 20 = 25$

$(11^2 + 7^2) - (8^2 + 6^2) = (121 + 49) - (64 + 36)$

$= 170 - 100 = 70$

$(4^2 + 1^2) - (5^2 + x^2) = -12$

$\Rightarrow (17 + 12) = (25 + x^2)$

$\Rightarrow x^2 = 4 \Rightarrow x = 2.$

12. (2) (15 – 5) + (6 × 2) = 22
(6 – 2) + (5 × 3) = 19
(14 – 10) + (3 × 2) = 10

13. (3) 934 – 678 = 256

14. (4) 8

15. (2) ← left end right end →
1 2 3 4 5 6 7 8 9 10
Ashutosh (current position) Ashutosh (previous position)

So, option (2) is the right answer.

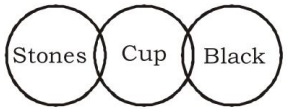
16. (2) The pattern is: +20.5, +22.5, +24.5, +26.5
So, Required number = 138 + 24.5 = 162.5

17. (1) The pattern is:
×3 – 1, ×3 – 2, ×3 – 3, ×3 – 4, ×3 – 5
So, required number = 185 × 3 – 5 = 550

18. (2) A is the brother of F, who is the daughter of D. So, we can say that A is the son of D. P is the brother of D. So, it is clear that P is the uncle of A.

19. (4)

20. (1) Only conclusion II follows.

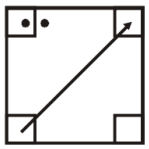


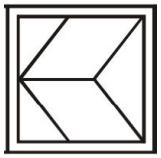
I. ✖
II. ✔

21. (3) b **a** b **b** b/ b **a** b **b** bb/ b **a** bb **b** / b

22. (3)

Word	A	R	D	E	N	T
Code	5	4	3	6	2	1

23. (3) 

24. (2) 

25. (2)

51. (2) Let no. of men be x.
According to the given data, we have

$$\frac{46575}{48\times45}\times2=\frac{17250}{16\times x}$$

[As daily wages of man is double of that of woman]

$$\Rightarrow x=\frac{17250\times48\times45}{46575\times2\times16}=25\ men$$

52. (3) Let total salary = 1300
Expenditure = 800
saving = 500

$$\text{Expenditure on food} = \frac{20}{100}\times800 = Rs.160$$

$$\text{Expenditure on clothes} = \frac{40}{100}\times800 = Rs.320$$

$$\text{Money deposited in bank} = \frac{60}{100}\times500 = Rs.300$$

$\therefore$ Required percentage

$$=\frac{\text{Money spent on clothes}}{\text{Amount deposited in bank}}\times100$$

$$=\frac{320}{300}\times100=\frac{320}{3}=106\frac{2}{3}\%$$

53. (1) Let the speed of stream be x km/hr
ATQ,

$$\frac{72}{9+x}+\frac{72}{9-x}=18$$

On solving, x = 3 km/hr

54. (3) Le the amount invested at the rate of 6% = x
ATQ,

$$(10000-x)\times\frac{5}{100}-\frac{x\times6}{100}=76.50$$

$$\Rightarrow 500-\frac{5x}{100}-\frac{6x}{100}=76.50\Rightarrow\frac{11x}{100}=423.50$$

$\Rightarrow$ x = Rs. 3850
Hence the amount invested at 6% = Rs. 3850

55. (1) Area of circle (A) = πr^2

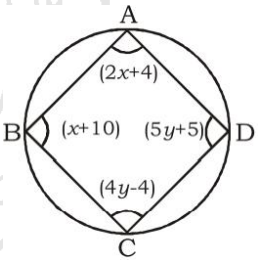
$$r=\sqrt{\frac{A}{\pi}}$$

ATQ,

$$3\times\text{side of triangle}=2\pi\times\sqrt{\frac{A}{\pi}}$$

$$\text{Side of triangle}=\frac{2\sqrt{\pi A}}{3}$$

$$\text{Area of triangle}=\frac{\sqrt{3}}{4}\times\left(\frac{2\sqrt{\pi A}}{3}\right)^3=\frac{\pi\sqrt{3}A}{9}\ cm^2$$

56. (4) 

$\angle B + \angle D = 180^o$
$\angle A + \angle C = 180^o$ and
$\Rightarrow$ x + 10 + 5y + 5 = 180°
$\Rightarrow$ x +5y = 165 ...(i)
2x + 4 + 4y – 4 = 180°
$\Rightarrow$ x + 2y = 90° ...(ii)
On solving (i) and (ii),
x = 40° and y = 25°
So, x + y = 40° + 25° = 65°

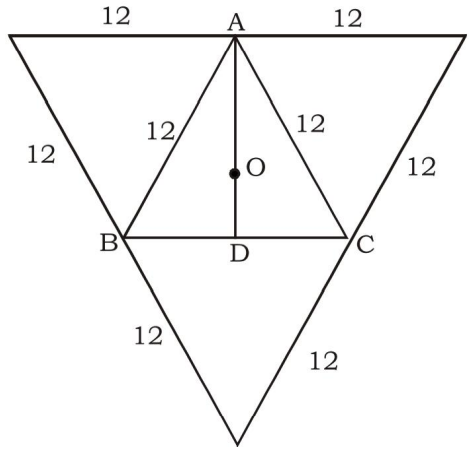
57. (2) A's distance : B's distance : C's distance
1000 : (1000 – 50) : (1000 – 69) = 1000 : 950 : 931
i.e. B's distance : C's distance

$$= 950 \underset{19\ m}{\frown} 931$$

i.e. in a race of 950 m, B can allow C a start of 19 m
$\therefore$ in a race of 1000 m, B can allow C a start of

$$\frac{19}{950}\times1000=20\ m$$

58. (2)



Area of equilateral triangle

$= \frac{\sqrt{3}}{4}a^2 = \frac{\sqrt{3}}{4} \times (12)^2 = \frac{144\sqrt{3}}{4}$

Now, the area of a regular tetrahedron

$= 4 \times \frac{144}{4} \times \sqrt{3} = 144\sqrt{3}\ cm^2$

59. (3) $x + \frac{1}{2x} = 2$ or $2x + 2 \times \frac{1}{2x} = 2 \times 2 \Rightarrow 2x + \frac{1}{x} = 4$

$\Rightarrow 8x^3 + \frac{1}{x^3} = 4^3 - 3 \times 2x \times \frac{1}{x} \times 4 = 64 - 24 = 40$

60. (3) Minimum value of

$4\sec^2\theta + 9\text{cosec}^2\theta = (\sqrt{4} + \sqrt{9})^2 = (5)^2 = 25.$

61. (2) Here, 280 is a multiple of 35.
∴ Required remainder
= Remainder obtained on dividing 115 by 35 = 10

62. (2) Average speed $= \frac{\text{Total distance}}{\text{Total time}}$

$= \frac{24 + 24 + 24}{\frac{24}{6} + \frac{24}{8} + \frac{24}{12}} = \frac{72}{4 + 3 + 2} = 8$ km/hr.

63. (1) $\cos A + \sin A = \sqrt{2}\cos A$

$\sin A = (\sqrt{2} - 1)\cos A$

$\frac{\sin A}{\sqrt{2} - 1} = \cos A \Rightarrow \frac{\sin A}{\sqrt{2} - 1} \times \frac{\sqrt{2} + 1}{\sqrt{2} + 1} = \cos A$

$\sin A(\sqrt{2} + 1) = \cos A$

Now, cosA – sinA

$= \sin A(\sqrt{2} + 1) - \sin A = \sqrt{2}\sin A$

64. (4) $\left(\frac{1+x}{x}\right)\left(\frac{x+2}{x+1}\right)\left(\frac{x+3}{x+2}\right)\left(\frac{x+4}{x+3}\right) = \frac{x+4}{x}$

65. (1) Interest = Rs. (81 – 72) = ` 9
Let the time be t years

Then, $9 = \frac{72 \times 25 \times t}{4 \times 100} \Rightarrow t = \frac{9 \times 400}{72 \times 25} = 2$ years

66. (2) Per hour wages $= \frac{2400}{60} = Rs.40.$

Per hour wages after increase $= 40 \times \frac{140}{100} = Rs.56.$

Work hours after reduction $= 60 \times \frac{250}{3 \times 100} = 50$ hrs.

New weekly wages = 56 × 50 = Rs. 2800
Increased in wages = 2800 – 2400 = Rs. 400

∴ % change $= \frac{400}{2400} \times 100 = 16\frac{2}{3}\%.$

67. (4) Length of the floor = 15 m 17 cm = 1517 cm
Breadth of the floor = 9 m 2 cm = 902 cm
Area of the floor = 1517 × 902 cm^2
The number of square tiles will be least, when the size of each tile is maximum.
∴ Size of each tile = HCF of 1517 and 902 = 41

∴ Required number of tiles $= \frac{1517 \times 902}{41 \times 41} = 814$

68. (1) Let the CP of article be x and its marked price be y.
ATQ,
90% of y = 115% of x

$\Rightarrow \frac{y \times 90}{100} = \frac{x \times 115}{100}$

$\Rightarrow \frac{x}{y} = \frac{90}{115} = \frac{18}{23} = 18 : 23.$

69. (2) $x = a\cos\theta,\ y = b\sin\theta$

$\therefore b^2x^2 + a^2y^2 = b^2a^2\cos^2\theta + a^2b^2\sin^2\theta$

$= a^2b^2(\cos^2\theta + \sin^2\theta) = a^2b^2 \times 1 = a^2b^2.$

70. (1) $\sin\theta = \frac{2mn}{m^2 + n^2} = \frac{\sin\theta \times \frac{1}{\tan\theta}}{\cos\theta}$

$= \frac{\sin\theta \times \frac{1}{\sin\theta} \times \cos\theta}{\cos\theta} = 1$

71. (1) $\frac{a+b}{\sqrt{ab}} = \frac{4}{1} \Rightarrow \frac{a+b}{2\sqrt{ab}} = \frac{2}{1}$

Applying Componendo and Dividendo

$\Rightarrow \frac{a + b + 2\sqrt{ab}}{a + b - 2\sqrt{ab}} = \frac{2+1}{2-1}$

$$\Rightarrow \frac{(\sqrt{a}+\sqrt{b})^2}{(a-b)^2} = \frac{3}{1} \Rightarrow \frac{\sqrt{a}+\sqrt{b}}{\sqrt{a}-\sqrt{b}} = \frac{\sqrt{3}}{1}$$

$$\Rightarrow \sqrt{a}+\sqrt{b} = \sqrt{3}\times\sqrt{a}-\sqrt{3}\times\sqrt{b}$$

$$\Rightarrow (\sqrt{3}+1)\sqrt{b} = (\sqrt{3}-1)\sqrt{a} \Rightarrow \frac{\sqrt{3}+1}{\sqrt{3}-1} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$\Rightarrow \frac{a}{b} = \frac{(\sqrt{3}+1)^2}{(\sqrt{3}-1)^2} = \frac{3+1+2\sqrt{3}}{3+1-2\sqrt{3}}$$

$$= \frac{4+2\sqrt{3}}{4-2\sqrt{3}} = \frac{2+\sqrt{3}}{2-\sqrt{3}} = (2+\sqrt{3}):(2-\sqrt{3})$$

72. (4) Distance covered $= 66\times\frac{5}{2}$

$2\pi r = 165$ metre

$\Rightarrow r = \frac{165\times 7}{2\times 22} = 26.25$ metres

73. (1) Remaining sum = 42050

$5\% = \frac{1}{20}$

A : B

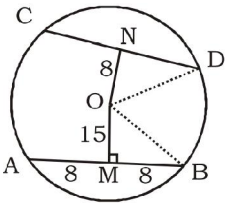
441 : $400 \rightarrow 840$

$\downarrow\times 50$

42050

$\therefore$ Share of B = 400 × 50 = Rs. 20,000

74. (3)



$OB = \sqrt{15^2+8^2} = \sqrt{225+64} = \sqrt{289} = 17$ cm

$\because$ OB & OD are radius of circle.

$DN = \sqrt{17^2-8^2} = \sqrt{289-64} = \sqrt{225} = 15$ cm

CD= CN + DN = 15 + 15 = 30 cm

75. (2) $\frac{\cos^2 60^\circ + 4\sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \cos^2 30^\circ}$

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

$$= \frac{1}{4} + \frac{16}{3} - 1 = \frac{3+64-12}{12} = \frac{55}{12}$$

76. (2) Nouns such as 'information' have no plural form, but adding a few words before those certain uncountable nouns make them countable, thus plural. Thus, it should be 'prakash gave me two pieces of information'.

77. (2) Words such as 'everything' and 'everyone' i.e both living and non-living will take a relative pronoun 'that'. Thus, replace 'who' by 'that'.

78. (1) 'When you have found out' is correct. If the 2 nd action takes place after the 1 st action has already finished, the 1 st action will be in present perfect tense.

91. (2) 'Will have completed' is a better option though not given here.