SSC CGL - 170729 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1 (3) $Q \xrightarrow{+3} T \xrightarrow{+1} U$

$I \xrightarrow{+3} L \xrightarrow{+1} M$

$B \xrightarrow{+3} E \xrightarrow{+1} F$

Similarly,

$W \xrightarrow{+3} Z \xrightarrow{+1} A$

2 (4) 6524 – 6465 = 59
9638 – 59 = 9579

3 (3) 64 = 8*8
144 = 12*12
256 = 16*16
400 = 20*20

4 (2) 3*3-1 = 9 – 1 = 8
3*3*3+1 =27+1 = 28
4*4-1 = 16-1 = 15
4*4*4+1 = 64+1 = 65

5 (4) M and N are 13 th and 14th letters of the English alphabet respectively. So, M × N corresponds to 13 x 14. Similarly, F and R are 6th and 18th letters of the English alphabet respectively. So, F × R corresponds to 6 × 18.

6 (3) The sum of digits of each numbers except 161 is an odd number.

7 (1) Except mare, all the others are different types of deer.

8 (3) Except elevation, the rest are synonymous.

9 (2) In all other pairs, the product of the two numbers is 126.

10 (1) Blood is the only non-drinkable liquid.

11 (2) R < S < A < K < M.

12 (3) The colour of the human blood is 'red' and as given, 'red' is called 'yellow'. So, the colour of human blood is 'yellow'

13 (3) Clearly, each letter is represented by the numeral denoting its position from the end of the English alphabet i.e.
Z = 1, Y = 2, …., M= 14,…. B= 25, A = 26.
Then, SUN= S+ U + N = 8 + 6 + 13 = 27.
SO, CAT = C+ A + T = 24 + 26 + 7 = 57

14 (3) A is the father of X and Y is the sister of X. So, Y is the daughter of A

15 (3)

16 (2)

17 (4) 2 × 2 + 2 = 6
6 × 2 + 4 = 16
16 × 2 + 6 = 38
38 × 2 + 8 = 84
84 × 2 + 10 = 178
178 × 2 + 12 = 368

18 (2) Using the correct symbols, we have:
Given expression
= 30 ÷ 2 + 3 × 6 – 5 = 15 + 18 – 5 = 28

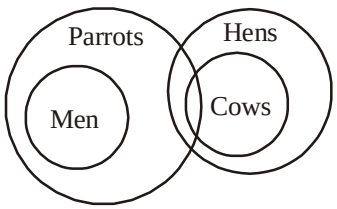
19 (3) Let Varun's age today = x years. Then, Vaurn's age after 1 year = (x + 1) years.
x + 1 = 2 (x – 12) $\Rightarrow$ x + 1 = 2x – 24$\Rightarrow$ x = 25.

20 (3) Since B and D are twins, so B = D.
Now, A = B + 3 and A = C – 3.
Thus, B + 3 = C – 3 $\Rightarrow$ D + 3 = C – 3 $\Rightarrow$ C – D = 6.

21 (2) Series is; 1^2, (2^2 + 1), 3^2, (4^2 + 1), 5^2, (6^2 + 1), 7^2
So wrong term is 15

22 (3) In the first row, 8 x 2 + 17 = 33 , in the second column, 12 × 2 + 5 = 29.
Missing number = 10 × 2 + 13 = 33.

23 (3)



24 (3)

25 (3)

51 (2) Square root of

$$\frac{(0.75)^3}{(1-0.75)}+(0.75+(0.75)^2+1)$$

$$=\frac{(0.75)^3+1^3-(0.75)^3}{(1-0.75)}=\frac{1}{0.25}=4$$

Square root of 4 is 2

52 (3) $\sqrt[3]{(13.608)^2-(13.392)^2}$

$=\sqrt[3]{(27.000)(0.216)}=3\times0.6=1.8$

53 (4) Let the present age of Mr. Suman = 10x + y yrs.
Age of his wife = 10y + x yrs.

$$\Rightarrow\frac{1}{11}(10x+y+10y+x)=(10x+y)-(10y+x)$$

$$\Rightarrow\frac{x}{y}=\frac{10}{8}=\frac{5}{4}$$

$\therefore$ x : y = 5 : 4
Age of Mr. Suman = (10 × 5 + 4) = 54 yrs.
Age of wife of Mr. Suman = (10 × 4 + 5) = 45 yrs.
Required rati = 54 : 45 = 6 : 5.

54 (1) Total age of the 4 members of the family, 10 yrs. ago = 24 × 4 = 96 yrs.
Present age of 4 members = 96 + 40 = 136 yrs.
Total age of the 7 members presently = 22 × 7 = 154 yrs.
Age of [twins + youngest child] = 154 – 136 = 18 yrs.
Let the age of the one of the twins = x yrs.
$\therefore$ age of the youngest = (x – 3) yrs.
Then, 2x + (x – 3) = 18 or, 3x = 21
$\therefore$ Age of children = 7, 7, 4 yrs.

55 (1) Let the bank makes a transaction of Rs. x crores.
According to ques,
(20 – 16.5)% of x = 10.5 crore

$$\therefore x=\frac{10.5\times100}{3.5}=300 \text{ crore}$$

56 (4) Let Ram's rowing rate is 'x'.
Speed of current is 'y'.

$$\text{Downstream time taken} = \frac{12}{x+y}$$

$$\text{Upstream time taken} = \frac{12}{x-y}$$

According to the question,

$$\frac{12}{x-y}-\frac{12}{x+y}=6\Rightarrow x^2-y^2=4y \qquad ...(i)$$

Now, if speed of boat doubles = 2x
Time is 1 hr. less as compared to upstream

$$\frac{12}{2x-y}-\frac{12}{2x+y}=1\Rightarrow 4x^2-y^2=24y \qquad ...(ii)$$

From (i) and (ii) we get $y=\frac{8}{3}$ mph

57 (4) Total CP of [25 kg + 35 kg] rice
= Rs. (25 × 16.50 + 35 × 24.50)
= Rs. 1270
SP of 25% profit = Rs. (1270 × 1.25) = Rs. 1587.5

$$\therefore \text{ Required rate} = \frac{1587.5}{60}=\text{Rs.}26.45 \text{ per kg}$$

58 (1)

59 (3) The total amount = Rs. (1000 + 140) = Rs. 1140
Let the 1st installment = Rs. x
According to question,

$$1140=\frac{12}{2}[2x+(12-1)(-10)]$$

$\Rightarrow$ 1140 = 6 × (2x – 110)
$\Rightarrow$ 12x = 1140 + 660
$\Rightarrow$ 12x = 1800 $\Rightarrow$ x = 150

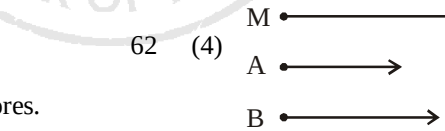
60 (2) Population of literates = 50% of 296000 = 148000
No. of male literates = 70% of 166000 = 116200
No. of female literates = 148000 – 116200 = 31800

61 (4) Let all (175) children were to get x sweets.
According to ques., 140 (x + 4) = 175x

$$\Rightarrow x=\frac{560}{35}=16$$

$\therefore$ Sweets to be distribution = 16 × 175 = 2800

62 (4)



Given, speed of A = 60 km/hr.
Distance travelled in 3 hr = 60 × 3 = 180 km
At 2 pm, Speed of B = 72 km/hr
Time difference = 3 hr.
Relative velocity = (72 – 60) = 12 km/hr

$$\text{Now, Time – gap (meeting)} = \frac{180}{12}=15 \text{ hr. after they met.}$$

They will meet at 2 pm + 15 hour = 5 am.

63 (1) 25 men and 15 women complete a piece of work in 12 days.

$$\therefore \text{ Work of 8 days} = \frac{1}{12}\times8=\frac{2}{3}$$

$$\text{Remaining work} = 1-\frac{2}{3}=\frac{1}{3}$$

Now, $\frac{1}{3}$ piece of work completed by 25 men in 6 days.

$\therefore$ 1 work can be completed by 25 men in 18 days.
Now,
Total work done by women

$= \frac{1}{12} - \frac{1}{18} = \frac{3-2}{36} = \frac{1}{36} = 36$ days

64 (3)

Man	:	Day	:	Time	=	Work
117		33		8	=	$\frac{4}{7}$
X		13		9	=	$\frac{3}{7}$

$\therefore X = \frac{117 \times 33 \times 8 \times 3}{13 \times 9 \times 4} = \frac{92664}{468} = 198$

$\therefore$ Required no. = 198 – 117 = 81

65 (3) Ratio of the amount of water filled in the cistern

$= 1^2 : \frac{16}{9} : 4 = 9 : 16 : 36$

Since 36 cubic unit of water is filled by the pipe of largest diameter in 6 minutes.
1 cubic unit of water is filled by the pipe of largest

diameter = $61 \times \frac{3}{6}$

61 cubic unit of water is filled by the pipe largest

diameter in $\frac{61 \times 36}{61} = 36$ minutes.

66 (4) Let the initial no. of total passengers = x
Initial ratio of male of female passengers = 3 : 1 (given)
Initial no. of total passengers (x) must be completely divisible by....
(Since 3 + 1 = 4) ...(i)
Also, change in the number of initial passenger
= (–16 + 6) = –10
And finally no. of male to female passengers = 2 : 1
$\Rightarrow$ Final no. of total passengers (i.e. x – 10).
Must be completely divisible by 3.
(Since 2 + 1 = 3) ...(i)
And among the options given, only option (4) = 64 fulfills both the criteria.
$\therefore$ Option will be (4).

67 (2)

68 (4) $x + \frac{1}{x} = p$

Squaring both sides,

$x^2 + \left(\frac{1}{x}\right)^2 = p^2$

$\Rightarrow x^2 + \frac{1}{x^2} + 2 = p^2$

$\Rightarrow x^2 + \frac{1}{x^2} = p^2 - 2$

Cubic both sides,

$\left(x^2 + \frac{1}{x^2}\right)^3 = (p^2 - 2)^3$

or, $x^6 + \frac{1}{x^6} = p^6 - 6p^4 + 9p^2 - 2$

69 (2) Rectangle having, l = 6 unit, b = 5 unit.
Area = $l \times b = 6 \times 5 = 30$ sq. unit
New rectangle having l = 7, b = 4
Area = $l \times b = 7 \times 4 = 28$.

Ratio = $\frac{30}{28} = 15:14$

70 (3) Volume = $\frac{4}{3}\pi\left[R_1^3 + R_2^3 + R_3^3\right]$

$= \frac{4}{3} \times 3.14[1 + 8 + 27] = 150.72$

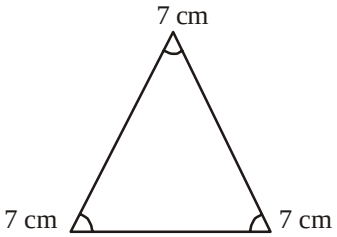
25% reduced = $\frac{75}{100} \times 150.72 = 113.04$

According to question,

$\left(\frac{4}{3}\right)\frac{22}{7} \times r^3 = 113.04$

$\Rightarrow r^3 = 27 \Rightarrow r = 3$

71 (3)



Area of region gazed

$= \frac{\angle A + \angle B + \angle C}{360°}(\pi R^2)$

$= \frac{180}{360}\left[\frac{22}{7} \times 7 \times 7\right] = 77$ sq. units

72 (2) $\sin(n+1)A \sin(n+2)A + \cos(n+1)A \cos(n+2)A$
Here n is variable.
Put n = 0
sin A . sin2A + cos A . cos 2A
$\Rightarrow \cos(A - 2A) = \cos(-A) = \cos A$

73 (1) Given that

$\sin\alpha + \sin\beta = a$ and ...(i)

\ $\cos\alpha + \cos\beta = b$ ...(ii)

Squaring and adding them

$a^2 + b^2 = \sin^2\alpha + 2\sin\alpha.\sin\beta + \cos^2\alpha + \cos^2\beta + 2\cos\alpha\cos\beta$

$a^2 + b^2 = 2 + 2\cos(\alpha - \beta)$

$\therefore \cos(\alpha - \beta) = \dfrac{a^2 + b^2 - 2}{2}$

Again, squaring and subtracting them,

[equation (i) and (ii)]

$b^2 - a^2 = \cos^2\alpha - \sin^2\alpha + \cos^2\beta - \sin^2\beta + 2[\cos\alpha\cos\beta - \sin\alpha\sin\beta]$

$= \cos 2\alpha + \cos 2\beta + 2\cos(\alpha + \beta)$

$= 2\cos(\alpha + \beta)[\cos(\alpha - \beta) + 1]$

$= 2\cos(\alpha + \beta)\left[\dfrac{a^2 + b^2 - 2}{2} + 1\right]$

$= 2\cos(\alpha + \beta)\left[\dfrac{a^2 + b^2}{2}\right]$

$\therefore \cos(\alpha + \beta) = \dfrac{b^2 - a^2}{a^2 + b^2}$

74 (1) % of boys in U school = 85%

$\therefore$ No. of boys = $\dfrac{85}{100} \times 1000 = 850$

% of boys in R school = 75%

No. of boys = $= \dfrac{75}{100} \times 2000 = 1500$

Total no. of boys in school R and U = 1500 + 850 = 2350

Total % of boys = $\dfrac{2350}{3000} \times 100 = 78.33$

75 (4) Required % = $\dfrac{2000}{2500} \times 100\% = 80\%$