



SSC CGL - 170835 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1. (3) Stethoscope is an instrument used by doctor, Similarly, chisel is used by sculptor.

2. (2) As, $9 \times 5 = 45$
and $9 \times 4 = 36$
Similarly, $9 \times 7 = 63$
and $9 \times 6 = 54$

Alternative Method :

$$\begin{array}{cc} 45 & : & 36 & & 63 & : & 54 \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ & & -9 & & -9 & & \end{array}$$

3. (1) $8 : 336$ $6 : 120$
 $8 \times 7 \times 6$ $6 \times 5 \times 4$

4. (3) As, M U M B A I \rightarrow L T L A Z H

Similarly, D E L H I \rightarrow C D K G H

5. (4) A surgeon uses forceps, similarly, a blacksmith uses hammer.

6. (1) O T \rightarrow P +3 S

In the same way, L Q \rightarrow M +3 P

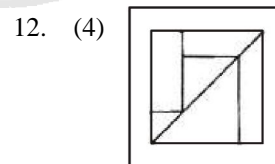
7. (4) Except 379, the sum of the digits in rest of the options is 13.

8. (4) 195 13 225 15 270 18 **196** **14**

9. (3) Except option (3), rest are the ancient names of India whereas Ajimabad is the ancient name of Patna.

10. (3) Only Renounce has different meaning whereas the other three words have similar meanings.

11. (1) The code contains the letters of the word in the order-third, fourth, second, fifth, first and sixth.



12. (4)

13. (1) $2 \times 5 = 10$, $10 \times 3 = 30$, $30 - 2 = 28$
 $4 \times 5 = 20$, $20 \times 3 = 60$, $60 - 2 = 58$

14. (1) The correct sequence is 5^2 , 7^2 , 9^2 , 11^2 , 13^2 and 15^2 . So, 36 is wrong.

15. (2) Total number of digits
= (Number of digits in 1-digit page nos.
+ Number of digits in 2-digit page nos.
+ Number of digits in 3-digit page nos.)
= $(1 \times 9 + 2 \times 90 + 3 \times 267)$
= $(9 + 180 + 801) = 990$

16. (1) At 1 o'clock, the hour hand is at 1 and the minute hand is at 12.

Thus, they are 5 min spaces apart.

To be together, the minute hand must gain 5 min over the hour hand.

55 min. are gained by minute hand in 60 min.
5 min will be gained by it in

$$\left(\frac{60}{55} \times 5\right) \text{ min} = \frac{60}{11} \text{ min} = 5\frac{5}{11} \text{ min.}$$

Hence, the hands will coincide at $5\frac{5}{11}$ min. past.

17. (2) $12 \div 2 + 9 - 4 = ?$
 $6 + 9 - 4 = ?$
 $15 - 4 = ?$
 $\therefore ? = 11$

18. (3)

18	100	294	648	1210
↓	↓	↓	↓	↓
$3^3 - 3^2$	$5^3 - 5^2$	$7^3 - 7^2$	$9^3 - 9^2$	$11^3 - 11^2$
$\frac{27}{-9}$	$\frac{125}{-25}$	$\frac{343}{-49}$	$\frac{729}{-81}$	$\frac{1331}{-121}$
$\frac{18}{18}$	$\frac{100}{100}$	$\frac{294}{294}$	$\frac{648}{648}$	$\frac{1210}{1210}$

19. (3) The letters decreases by 1 and the numbers are multiplied by 2.
 20. (3) The sequence in first column is multiplied by 5.
 Thus, $1 \times 5 = 5, 5 \times 5 = 25, 25 \times 5 = 125$
 The sequence in third column is multiplied by 2.
 Thus, $7 \times 2 = 14, 14 \times 2 = 28, 28 \times 2 = 56$
 The sequence in second column is multiplied by 4.
 \therefore Missing number = $12 \times 4 = 48$
 21. (3) In the first column, $29 - 8 = 7 \times 3 = 21$
 In the second column, $19 - 7 = 4 \times 3 = 12$
 Let the missing number in the third column be x.
 Then, $31 - 6 = 5 \times x$ or $5x = 25$ or $x = 5$

22. (2)

23. (4) $4 \times 3 \times 5 \times 2 = 120 \Rightarrow \frac{120}{2} = 60$

$$5 \times 6 \times 2 \times 3 = 180 \Rightarrow \frac{180}{2} = 90$$

$$5 \times 2 \times 3 \times 9 = 270 \Rightarrow \frac{270}{2} = 135$$

24. (2) Number of days from March 6, 1993 to August 15, 1993.
 March — April — May — June — July — August
 $= 25 + 30 + 31 + 30 + 31 + 15$
 $= 162 \text{ days} = 23 \text{ weeks} + 1 \text{ day}$
 Clearly, the day on March 6, will be the same as on August 14 i.e., Thursday.

25. (3)

51. (3) B's 1 day's work = $\left(\frac{1}{12} - \frac{1}{20}\right) = \frac{2}{60} = \frac{1}{30}$

Now, (A + B)'s 1 day's work

$$= \left(\frac{1}{20} + \frac{1}{30 \times 2}\right) = \frac{4}{60} = \frac{1}{15}$$

[\therefore B works for half day only]

So, A and B together will complete the work in 15 days.

52. (3) $\sqrt{\frac{\sqrt{36} - \sqrt{24} + \sqrt{24} - \sqrt{16}}{5 + \sqrt{24}}}$

$$= \sqrt{\frac{6-4}{5+\sqrt{24}}} = \sqrt{\frac{2}{5+\sqrt{24}}} = \sqrt{\frac{2}{5+\sqrt{6 \times 4}}}$$

$$= \sqrt{\frac{2}{5+2\sqrt{6}}} = \sqrt{\frac{2}{5+2\sqrt{6}} \times \frac{5-2\sqrt{6}}{5-2\sqrt{6}}}$$

$$= \sqrt{\frac{2(5-2\sqrt{6})}{25-24}} = \sqrt{2(5-2\sqrt{6})}$$

$$= \sqrt{2[(\sqrt{3})^2 + (\sqrt{2})^2 - 2\sqrt{3}\sqrt{2}]}$$

$$= \sqrt{2(\sqrt{3}-\sqrt{2})^2} = \sqrt{2}(\sqrt{3}-\sqrt{2}) = \sqrt{6}-2$$

53. (3) Here interior angle – exterior angle = 60°

$$\frac{(n-2) \times 180}{n} - \frac{360}{n} = 60$$

$$\Rightarrow \frac{1}{n} [(n-2) \times 180 - 360] = 60$$

$$\Rightarrow \frac{1}{n} (180n - 360 - 360) = 60$$

$$\Rightarrow \frac{1}{n} (180n - 720) = 60$$

$$\Rightarrow 180n - 720 = 60n \Rightarrow 120n = 720$$

$$\Rightarrow n = \frac{720}{120} = 6$$

54. (1) Let cost of 1 litre milk be ` 1

Milk in 1 litre mix. in A = $\frac{8}{13}$ litre

C.P. of 1 litre mix. in A = ` $\frac{8}{13}$

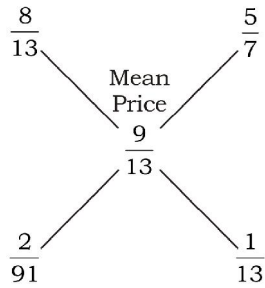
Milk in 1 litre mix. in B = $\frac{5}{7}$ litre

C.P. of 1 litre mix. in B = ` $\frac{5}{7}$

Milk in 1 litre of final mix. = $\left(\frac{900}{13} \times \frac{1}{100} \times 1\right) = \frac{9}{13}$ litre

Mean price = ` $\frac{9}{13}$

By the rule of alligation, we have:



$$\therefore \text{Required ratio} = \frac{2}{91} : \frac{1}{13} = 2 : 7$$

55. (1) L.C.M. of 18, 36, 45 and 60 = 180

$$\text{Now, } \frac{17}{18} = \frac{17 \times 10}{18 \times 10} = \frac{170}{180}$$

$$\frac{31}{36} = \frac{31 \times 5}{36 \times 5} = \frac{155}{180}$$

$$\frac{43}{45} = \frac{43 \times 4}{45 \times 4} = \frac{172}{180}$$

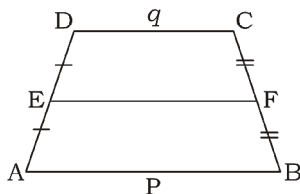
$$\frac{59}{60} = \frac{59 \times 3}{60 \times 3} = \frac{177}{180}$$

Since, $155 < 170 < 172 < 177$,

$$\text{So, } \frac{155}{180} < \frac{170}{180} < \frac{172}{180} < \frac{177}{180}$$

$$\text{Hence, } \frac{31}{36} < \frac{17}{18} < \frac{43}{45} < \frac{59}{60}$$

56. (3) Let ABCD is trapezium and E, F are the mid points, then



$$EF = \frac{1}{2}(AB + DC) \Rightarrow EF = \frac{1}{2}(p + q)$$

$$\therefore \{AB = p, DC = q\}$$

57. (1) $5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5} = \frac{\text{Perpendicular}}{\text{Base}}$

$$\text{Now, } \frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 3 \cos \theta} = \frac{5 \tan \theta - 3}{5 \tan \theta + 3}$$

$$= \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3} = \frac{1}{7}$$

58. (4) Let the third proportional to $(x^2 - y^2)$ and $(x - y)$ be z . Then

$$(x^2 - y^2) : (x - y) :: (x - y) : z$$

$$\Rightarrow (x^2 - y^2) \times z = (x - y)^2$$

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

59. (4) Let the number of other workers be x .
Then, number of agricultural workers = $11x$
Total number of workers = $12x$
 \therefore Average monthly income

$$= \frac{S \times 11x + T \times x}{12x} = \frac{11S + T}{12}$$

60. (2) Let the sum invested at 9% be x and that invested at 11% be $(100000 - x)$

Then,

$$\left(\frac{x \times 9 \times 1}{100} \right) + \left[\frac{(100000 - x) \times 11 \times 1}{100} \right]$$

$$= \left(100000 \times \frac{39}{4} \times \frac{1}{100} \right)$$

$$\Rightarrow \frac{9x + 1100000 - 11x}{100} = \frac{39000}{4} = 9750$$

$$\Rightarrow 2x = (1100000 - 975000) = 125000$$

$$\Rightarrow x = 62500$$

\therefore Sum invested at 9% = $\text{₹} 62,500$

Sum invested at 11% = $\text{₹} (100000 - 62500) = \text{₹} 37,500$

61. (1) Product of numbers = $11 \times 385 = 4235$

Let the numbers be $11a$ and $11b$.

$$\text{Then, } 11a \times 11b = 4235$$

$$\Rightarrow ab = 35$$

Now, co-primes with product 35 are (1, 35) and (5, 7)

So, the numbers are $(11 \times 1, 11 \times 35)$ and $(11 \times 5, 11 \times 7)$

Since one number lies between 75 and 125, the suitable pair is (55, 77)

Hence, required number = 77.

62. (3) Let speed of the car be x km/h

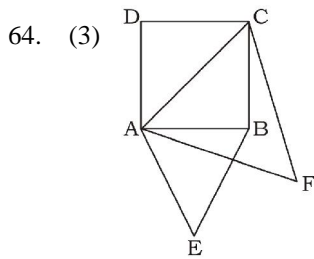
$$\text{Then, speed of the train} = \frac{150}{100}x = \left(\frac{3}{2}x \right) \text{ km/h}$$

$$\therefore \frac{75}{x} - \frac{75}{\frac{3}{2}x} = \frac{125}{10 \times 60}$$

$$\Rightarrow \frac{75}{x} - \frac{50}{x} = \frac{5}{24}$$

$$\Rightarrow x = \left(\frac{25 \times 24}{5} \right) = 120 \text{ km/h}$$

$$\begin{aligned}
 63. (3) \quad & \frac{\frac{13}{4} - \frac{5}{6} \times \frac{4}{5}}{\frac{13}{3} \div \frac{1}{5} - \left(\frac{3}{10} + \frac{106}{5}\right)} - \left(\frac{3}{2} \times \frac{5}{3}\right) \\
 & = \frac{\frac{13}{4} - \frac{2}{3}}{\frac{13 \times 5}{3} - \left(\frac{3 + 212}{10}\right)} - \frac{5}{2} = \frac{\frac{39-8}{12}}{\frac{65}{3} - \frac{215}{10}} - \frac{5}{2} \\
 & = \frac{\frac{31}{12}}{\frac{650-645}{30}} - \frac{5}{2} = \frac{31}{12} \times \frac{30}{5} - \frac{5}{2} \\
 & = \frac{31}{2} - \frac{5}{2} = \frac{31-5}{2} = \frac{26}{2} = 13
 \end{aligned}$$



Here $AC^2 = 2AB^2$
 As $\triangle ABE$ and $\triangle ABC$ are equiangular so $\triangle ABE \sim \triangle ABC$
 [The ratio of the areas of two similar triangles is equal to the ratio of the square of their corresponding sides]

$$\frac{\text{area of } (\triangle ABE)}{\text{area of } (\triangle ACF)} = \frac{AB^2}{AC^2} = \frac{AB^2}{2AB^2} = \frac{1}{2}$$

65. (3) Number of males = 60% of 1000 = 600
 Number of females = (1000 - 600) = 400
 Number of literates = 25% of 1000 = 250
 Number of literate males = 20% of 600 = 120
 Number of literate females = (250 - 120) = 130

$$\therefore \text{Required percentage} = \left(\frac{130}{400} \times 100\right)\% = 32.5\%$$

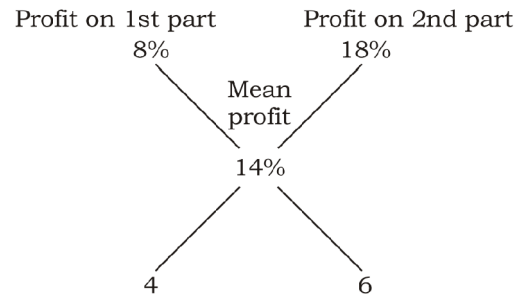
66. (3) Let the base of triangle be decreased by $x\%$.
 According to the question,

$$10 - x - \frac{10x}{100} = 0 \quad [\text{Area remains same}]$$

$$\Rightarrow x + \frac{x}{10} = 10 \Rightarrow \frac{10x + x}{10} = 10$$

$$\Rightarrow \frac{11x}{10} = 10 \Rightarrow x = \frac{100}{11} = 9\frac{1}{11}\%$$

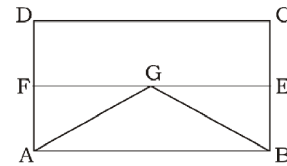
67. (3) By the rule of alligation, we have:



Ratio of 1st and 2nd parts = 4 : 6 = 2 : 3

$$\therefore \text{Quantity of 2nd kind} = \left(\frac{3}{5} \times 1000\right) \text{ kg} = 600 \text{ kg}$$

68. (2) $AB \parallel EF \parallel CD$. So ABEF is a rectangle



$$\therefore \triangle AGB = \frac{1}{2} (\text{area of rectangle ABEF})$$

$$= \frac{1}{2} \times \left(\frac{1}{2} \text{ area of rectangle ABCD}\right)$$

$$= \frac{1}{4} (\text{area of rectangle ABCD})$$

or, If a triangle and a parallelogram are on the same base and between the same parallels then the area of the triangle is equal to half the area of the parallelogram.

69. (1)
$$\left[15000 \times \left(1 + \frac{R}{100}\right)^2 - 15000 \right] - \left(\frac{15000 \times R \times 2}{100} \right) = 96$$

$$\Rightarrow 15000 \left[\left(1 + \frac{R}{100}\right)^2 - 1 - \frac{2R}{100} \right] = 96$$

$$\Rightarrow 15000 \left[\frac{(100+R)^2 - 10000 - 200R}{10000} \right] = 96$$

$$\Rightarrow R^2 - \frac{96 \times 2}{3} = 64 \Rightarrow R = 8$$

70. (2) 50% of $(x - y) = 30\%$ of $(x + y)$

$$\Rightarrow \frac{50}{100}(x - y) = \frac{30}{100}(x + y)$$

$$\Rightarrow 5(x - y) = 3(x + y)$$

$$\Rightarrow 2x = 8y \Rightarrow x = 4y$$

∴ Required percentage

$$= \left(\frac{y}{x} \times 100 \right) \% = \left(\frac{y}{4y} \times 100 \right) \% = 25\%$$

71. (3) Required number of students passed in third division
= 70

72. (3) Percentage of students failed in 1984

$$= \frac{35}{200} \times 100 = 17 \frac{1}{2} \%$$

73. (3) Total passed students = 140 + 150 + 165 = 455

Total students = 170 + 195 + 200 = 565

∴ Required percentage

$$= \frac{465}{565} \times 100 = \frac{9100}{113} = 80 \frac{60}{113} \%$$

74. (4) Required percentage = $\frac{20}{170} \times 100 = \frac{200}{17} = 11 \frac{13}{17} \%$

75. (4) Required percentage = $\frac{140}{170} \times 100 = \frac{1400}{17} = 82 \frac{6}{17} \%$

