



SSC CGL - 170842 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1

7. (1) All except Brigadier are ranks in Navy, while Brigadier is a rank in army.
8. (4) In all other pairs, first is essentially required to use the second.
9. (2) The sequence is
a e b d c / f j g i h / k o l n m.
10. (3) Clearly, it can be seen that G is coded as 5, A- 2, T - 4, E - 7. So GATE = 5247
11. (3) As we know that Lizards are the animal who can crawl. So, they will be called flier.
12. (3) Let the total number of friends be x and number of friends attended the meeting be x - 4.
Then, we have
$$\frac{96}{x-4} - \frac{96}{x} = 4 \Rightarrow \frac{1}{x-4} - \frac{1}{x} = \frac{4}{96}$$

$$\Rightarrow \frac{x - (x - 4)}{x(x - 4)} = \frac{1}{24} \Rightarrow x^2 - 4x - 96 = 0$$

$$\Rightarrow (x - 12)(x + 8) = 0 \Rightarrow x = 12.$$

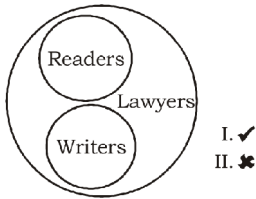
No. of friends attended the picnic = 12 - 4 = 8
 \therefore Eight more than the number of those who attended the picnic = 8 + 8 = 16.
13. (3) Shyam's position from left = 9 - (4 - 2) = 9 - 2 = 7th.
14. (1) Anupam's son-in-law is the brother of the lady who was sitting in the car. Hence, the husband is also the son-in-law of Anupam.
15. (2) Suppose boy got x sums right and 2x sums wrong.
Then, we have
 $x + 2x = 48 \Rightarrow 3x = 48 \Rightarrow x = 16$
So, he had solved 16 sums correctly.

16. (1)
17. (1) $1 \times 1 + 1 = 2; 2 \times 2 + 2 = 6, 6 \times 3 + 3 = 21; 21 \times 4 + 4 = 88.$
18. (4) A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
1 2 3 4
11109 8 7 6 5 4 3 2 1
Required letter is = M
19. (1) $714 = 51 \times 14$
 $915 = 61 \times 15$
 $1136 = 71 \times 16$
 $1377 = 81 \times 17$
20. (4) All the numbers mentioned here are consecutive prime numbers. So, the next prime number in the series is 23.
21. (1) $4 + 3 = 7; 7^3 = 343$
 $4 + 4 = 8; 8^3 = 512$
 $\therefore 4 + 5 = 9; 9^3 = 729$

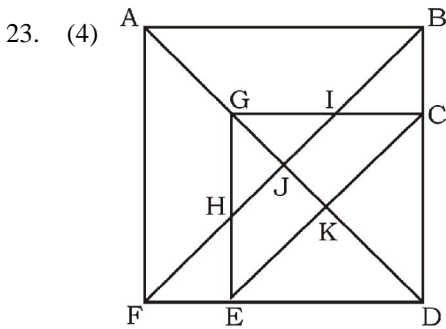
1. (2) As, $16 : 56 = 2 : 7$
Similarly, $32 : 112 = 2 : 7$
2. (4) Tree Originates from root and smoke originates from fire.
3. (1) $9 = 3^2$ $16 = 4^2$
 $8 = (3 - 1)^3$ or 2^3 $27 = (4 - 1)^3$ or 3^3
4. (3) Umpire is required to give decision in match and Judge is required to give decision in Law suit.
5. (2)

B	E	G	K	P	S	V	Y
↓ ₋₁	↓ ₋₁	↓ ₋₁	↓ ₋₁	↓ ₋₁	↓ ₋₁	↓ ₋₁	↓ ₋₁
A	D	F	J	O	R	U	X
6. (3) $35 \Rightarrow (3 - 1) \times (5 - 1) = 2 \times 4 = 08 \Rightarrow 35 - 08$
 $57 \Rightarrow (5 - 1) \times (7 - 1) = 4 \times 6 = 24 \Rightarrow 57 - 24$
 $59 \Rightarrow (5 - 1) \times (9 - 1) = 4 \times 8 = 32 \neq 34 \Rightarrow 59 - 34$
 $79 \Rightarrow (7 - 1) \times (9 - 1) = 6 \times 8 = 48 \Rightarrow 79 - 48$

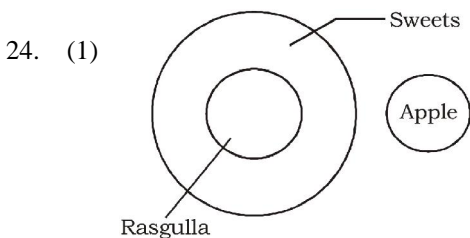
22. (1) "Some readers are writers" may be a possibility but cannot be concluded from the given statements.



Only conclusion I follows.



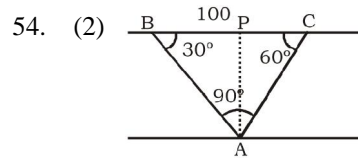
Simple triangles are EFH, BIC, GHJ, GIJ, EKD and CKD i.e. 6 in number.
 Triangles composed of two components are ABJ, AFJ, GCK, GEK, CED and GHI i.e. 6 in number.
 Triangles composed of three components are GCD, GED, DJB and DJF i.e. 4 in number.
 Triangles composed of four components are ABF and GCE i.e. 2 in number.
 Triangles composed of five components are ABD and AFD i.e. 2 in number.
 There is only one triangle i.e. FBD composed of six components.
 \therefore Total number of triangles in the figure = $6 + 6 + 4 + 2 + 2 + 1 = 21$.



Rasgulla is one of the sweets, while apple is different from these.

25. (2)
 51. (2) No. of students in law faculty in 2013-14 = 250
 Total students = $250 + 250 + 600 + 500 = 1600$
 % of students in law faculty = $\frac{250}{1600} \times 100 = 15.6\%$

52. (1) No. of science students in 2011-12 = 400
 No. of science students in 2013-14 = 600
 % increase in science students = $\frac{600 - 400}{400} \times 100 = 50\%$
 53. (3) No. of students in science faculty in 2011-12 = 400
 Total students = $150 + 200 + 400 + 600 = 1350$
 % of students in science faculty = $\frac{400}{1350} \times 100 = 29.6\%$



$$\angle BAC = 90^\circ \Rightarrow \sin 30^\circ = \frac{AC}{100}$$

$$\Rightarrow \frac{1}{2} = \frac{AC}{100}; AC = 50 \text{ m,}$$

$$\Rightarrow \sin 60^\circ = \frac{AP}{AC} \Rightarrow \frac{\sqrt{3}}{2} = \frac{AP}{50} \Rightarrow AP = 25\sqrt{3} \text{ m}$$

55. (2) A \rightarrow 20 hrs $\xrightarrow{3 \text{ units/hrs}}$
 B \rightarrow 30 hrs $\xrightarrow{2}$ (60) Total capacity (in units)
 C \rightarrow 60 hrs $\xrightarrow{-1 \text{ unit/hrs}}$
 In first hour A + C will fill = $3 - 1 = 2$ units
 In second hour B + C will fill = $2 - 1 = 1$ unit
 Hence, $2 + 1 = 3$ units will be filled in 2 hours
 So, $3 \times 20 = 60$ units will be filled in = $20 \times 2 = 40$ hours

56. (2) $pq + rp = -qr \dots(i)$
 $pq + qr = -rp \dots(ii)$
 $qr + rp = -pq \dots(iii)$
 Now,

$$\frac{p^2}{p^2 + pq + rp} + \frac{q^2}{q^2 + qp + qr} + \frac{r^2}{r^2 + qr + rp}$$

$$= \frac{p^2}{p(p + q + r)} + \frac{q^2}{q(p + q + r)} + \frac{r^2}{r(p + q + r)}$$

$$= \frac{(p + q + r)}{(p + q + r)} = 1.$$

57. (3) $2\pi R_1(R_1 + h) = \pi(12^2 - 8^2)$
 $\Rightarrow R_1 + h = \frac{80}{2R_1} = \frac{40}{R_1}$
 $\Rightarrow h = \frac{40}{R_1} - R_1 = \frac{40 - R_1^2}{R_1}$
 58. (1) $\frac{60 + x}{180} = \frac{2}{3} \Rightarrow 180 + 3x = 360 \Rightarrow 3x = 180 \Rightarrow x = 60.$

59. (2) Suppose Sreea joins for x months.
Then,

$$\frac{450 \times 12}{300 \times x} = \frac{2}{1} \Rightarrow x = \frac{450 \times 6}{300} = 9 \text{ months}$$

∴ sreea joins after (12 - 9) = 3 months.

60. (4) $a^2 + b^2 + c^2 = 2a - 2b - 2c - 1 - 1 - 1$
 $\Rightarrow a^2 - 2a + 1 + b^2 + 2b + 1 + c^2 + 2c + 1 = 0$
 $\Rightarrow (a - 1)^2 + (b + 1)^2 + (c + 1)^2 = 0$
 $\therefore (a - 1)^2 = 0 \Rightarrow a = 1$
 $(b + 1)^2 = 0 \Rightarrow b = -1$
 $(c + 1)^2 = 0 \Rightarrow c = -1$
 $\therefore a + b + c = 1 + (-1) + (-1) = -1$

61. (4)

	Alcohol	Water
C.P.	Rs.100 / lit.	Rs. 50 / lit.
Mixture-	1 lit.	0.25 lit
(Qty.)		
C.P. =	Rs. 100	Rs. 12.5
Total C.P. =	112.5	
Mix =	1.25 lit.	
SP@ Rs. 100 / lit =	1.25 lit. × 100 =	Rs. 125.

$$P\% = \frac{12.5}{112.5} \times 100 = 11\frac{1}{9}\%$$

62. (2)

	A	B
Eff.	1	2
	×	
	15 days	
Total work =	1 × 15 unit =	15x
11 days work of A =	11 × 1x =	11x
Left work =	(15 - 11)x =	4x
One day work of B =	2x	
No. of B days =	$\frac{4x}{2x} =$	2 days.

63. (2) Required Bricks
 $= \frac{20 \times 100 \times 100 \times 100 \text{ cm}^3}{25 \times 12.5 \times 8 \text{ cm}^3} = 8000.$

64. (3) $\frac{a}{1} = \frac{\sqrt{x+2} + \sqrt{x-2}}{\sqrt{x+2} - \sqrt{x-2}}$

[By componendo dividendo]

$$\frac{a+1}{a-1} = \frac{2\sqrt{x+2}}{2\sqrt{x-2}} = \frac{\sqrt{x+2}}{\sqrt{x-2}}$$

$$\Rightarrow \left(\frac{a+1}{a-1}\right)^2 = \left(\frac{\sqrt{x+2}}{\sqrt{x-2}}\right)^2 = \frac{x+2}{x-2}$$

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

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

$$\Rightarrow 2a^2 + 2 = 2ax$$

$$\Rightarrow 2a^2 - 2ax = -2$$

$$\Rightarrow a^2 - ax = -2/2 = -1$$

65. (2)

A → 10 days	6 units/day	Total work units
B → 12 days	5 units/day	
C → 15 days	4 units/day	

work done by A in 2 days = 6 × 2 = 12 units

work done by B in 3 days = 5 × 3 = 15 units

$$\therefore \text{Required time} = \frac{63}{9} = 7 \text{ days.}$$

66. (2) $675 = 5 \times 5 \times 3 \times 3 \times 3$
 \therefore Required number = 5

67. (2) $\cos(\alpha + \beta) = 0 = \cos 90^\circ$
 $\Rightarrow \alpha + \beta = 90^\circ$
 $\Rightarrow \alpha = 90^\circ - \beta$
 Now, $\alpha - \beta = 90^\circ - 2\beta$
 $\sin(\alpha - \beta) = \sin(90^\circ - 2\beta) = \cos 2\beta$

68. (4)

Rohan → 25	4
	100
Rohan + Kamal → 20	5

Efficiency = 4 : 1
 \therefore Required amount = ` 125

69. (1) $\frac{2}{x} = \frac{y}{54} \Rightarrow xy = 2 \times 54 = 6 \times 18$

70. (3) Weekly changes = ` 168,000

$$\text{Gross collection increase per day} = \frac{168000}{7} = \text{Rs.}24000.$$

71. (2) $x = \frac{1}{2 + \sqrt{3}} = \frac{1 \times (2 - \sqrt{3})}{(2 + \sqrt{3})(2 - \sqrt{3})} = \frac{2 - \sqrt{3}}{4 - 3} = 2 - \sqrt{3}$

$$\Rightarrow y = \frac{1}{2 - \sqrt{3}} = 2 + \sqrt{3}$$

$$8xy(x^2 + y^2) = 8 \times (2 - \sqrt{3})(2 + \sqrt{3})[(2 - \sqrt{3})^2 + (2 + \sqrt{3})^2]$$

$$= 8 \times (4 - 3) [2 \times (4 + 3)] = 8 \times 14 = 112$$

72. (1)

←	288 km	→
P		Q
→		←
Train 1		Train 2

Let the speed of train₁ and train₂ is respectively x km/h and y km/h

Both the train are moving in opposite dirrection then relative speed = (x + y) km/h

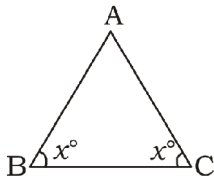
From condition (i), they meet after 8 hours then $8(x + y) = 288 \Rightarrow x + y = 36$... (i)

from condition (ii), $(x - y) = 11$... (ii)

From equ. (i) & equ. (ii),

$$x = 23\frac{1}{2} \text{ km/h and } y = 12\frac{1}{2} \text{ km/h}$$

73. (4)



ABC is an isosceles triangle in which $AB = AC$

$$\therefore \angle B = \angle C = x^\circ$$

$$\angle A = 2 \times 2x^\circ = 4x^\circ \quad \because \angle A + \angle B + \angle C = 180^\circ$$

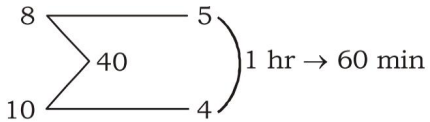
$$\Rightarrow 4x^\circ + x^\circ + x^\circ = 180^\circ \Rightarrow 6x^\circ = 180^\circ \Rightarrow x^\circ = 30^\circ$$

$$\therefore \text{Required angle} = \frac{4x^\circ}{2} = \frac{4 \times 30}{2} = 60^\circ.$$

74. (3) Length of direct common tangent

$$= \sqrt{(C_1C_2)^2 - (r_1 - r_2)^2} = \sqrt{(13)^2 - (8 - 3)^2}$$

$$= \sqrt{169 - 25} = \sqrt{144} = 12 \text{ cm.}$$

75. (3) 

$$\therefore \text{Required distance} = \frac{7.5}{60} \times 40 = 5 \text{ km.}$$

76. (2) Since the indirect speech is in past tense, 'is' should be replaced by 'was'.

77. (3) Replace 'have' by 'has' as the subject of this sentence is singular i.e., 'each of the students'.

88. (3)

89. (4) 'Advice' is singular uncountable noun.

90. (3) 'recollect' takes 'V + ing' after it.

91. (1) Here two actions/states are inversely or directly proportional to each other.

Here Comparative degrees will come in both preceded by article 'the'.

