SSC CHSL - CHT1 : 180345 GRAND TEST HINTS AND SOLUTIONS

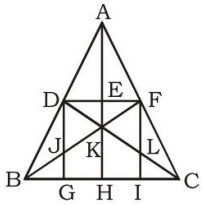
ANSWER KEY

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

1. (1) $8 : 336 \quad 6 : 120$
   $8\times7\times6 \qquad 6\times5\times4$

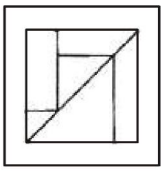
2. (1) O T → P +3 S
   +1
   +1
   In the same way, L Q → M +3 P
   +1
   +1

3. (2) SH is the adjacent pair of IR.
4. (3) Dictionary contains words.
5. (4) As chairman is the highest authority in a conference, similarly Editor is in Newspaper at highest authority.
6. (4) All except Aluminum are magnetic metal.
7. (3) Except option (3), rest are the ancient names of India wheares Ajimabad is the ancient name of Patna.
8. (2) All except Director spend money.
9. (2) Except (2), In rest of the options the position of a number gets interchange.
10. (2) The pattern is +4, +9, +16, +25, +36, +49 ..... i.e. $+2^2$, $+3^2$, $+4^2$, $+5^2$, $+6^2$, $+7^2$.....
    So, missing term = $94 + 7^2 = 94 + 49 = 143$.
11. (3) The letters decreases by 1 and the numbers are multiplied by 2.
12. (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 $x = 5$
13. (3) We have:
    $(27 \div 3) + (16 \div 4) = 13$; $(42 \div 7) + (65 \div 13) = 11$.
    So, missing number= $(27 \div 9) + (72 \div 8) = (3 + 9) = 12$.
14. (1) $2 \times 5 = 10$, $10 \times 3 = 30$, $30 - 2 = 28$
    $4 \times 5 = 20$, $20 \times 3 = 60$, $60 - 2 = 58$
15. (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
    $\left(\frac{60}{55}\times5\right)\text{min} = \frac{60}{11}\text{ min} = 5\frac{5}{11}\text{ min}.$
    Hence, the hands will coincide at $5\frac{5}{11}$ min. past.
16. (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 days = 23 weeks + 1 day
    Clearly, the day on March 6, will be the same as on August 14 i.e., Thursday.
17. (4) Since, there are three Z's in consecutive order.
18. (1)
19. (2)
20. (3)
21. (3) REPORT
22. (3) Father and mother are parents but they are two different entity.
23. (3)



The Horizontal lines are DF and BC i.e. 2 in number.
The Vertical lines are DG, AH and FI i.e. 3 in number.

The Slanting lines are AB, AC, BF and DC i.e. 4 in number.
Thus, there are 2 + 3 + 4 = 9 straight lines in the figure.
Now, we shall count the number of triangles in the figure.
Simplest triangles are ADE, AEF, DEK, EFK, DJK, FLK, DJB, FLC, BJG and LIC i.e. 10 in number.
Triangles composed of two components each are ADF, AFK, DFK, ADK, DKB, FCK, BKH, KHC, DGB and FIC i.e. 10 in number.
Triangles composed of three components each are DFJ and DFL i.e. 2 in number.
Triangles composed of four components each are ABK, ACK, BFI, CDG, DFB, DFC and BKC i.e. 7 in number.
Triangles composed of six components each are ABH, ACH, ABF, ACD, BFC and CDB i.e. 6 in number.
There is only one triangle i.e. ABC composed of twelve components. There are 10 + 10 + 2 + 7 + 6+ 1 = 36 triangles in the figure.

24. (4) 

25. (2) Every identity is moving at each of the different 5 places in a block.

51. (1) According to the question :-
Water filled by the pipe A in 2 hours = 5 × 2 = 10 units
Water filled by the pipe B in 1 hour = 4 × 1 = 4 units
Total water filled = (10 + 4) = 14 units
Now all the pipes will work together.

$\therefore$ Required time $= \frac{60-14}{(5+4-3)} = \frac{46}{6} = \frac{23}{3}$

Total time = $2+\frac{23}{3} = 9\frac{2}{3}$ hours

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

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

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

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

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

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

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

53. (4) Let $x = \sqrt{8+2\sqrt{8+2\sqrt{8.....}}}\infty$, then

$x = \sqrt{8+2x}$
Squaring both sides, we get
$x^2 = 8 + 2x$
$\therefore$ x = 4

54. (1) Product of numbers = 11 × 385 = 4235
Let the numbers be 11a and 11b.
Then, 11a × 11b = 4235
$\Rightarrow$ ab = 35
Now, co-primes with product 35 are (1, 35) and (5, 7)
So, the numbers are (11 × 1, 11 × 35) and (11 × 5, 11 × 7)
Since one number lies between 75 and 125, the suitable pair is (55, 77)
Hence, required number = 77.

55. (3) 1000 is not a perfect square so we need to make perfect square.

	32
3	10000
3	9
62	100
2	124
	24

We need 24 more plants.

56. (2) Average age of the couple is 25 years.
The sum = 2 × 25 = 50 years
After 3 years, sum = 50 + 2 × 3 = 56 years
Age of baby = 2 years

The average $= \frac{56+2}{3} = \frac{58}{3} = 19\frac{1}{3}$ years

57. (3) Suppose the vessel initially contains 8 litres of liquid.
Let x litres of this liquid be replaced with water.
Quantity of water in new mixture

$= \left(3-\frac{3x}{8}+x\right)$ litres

Quantity of syrup in new mixture $= \left(5-\frac{5x}{8}\right)$ litres

$$\therefore \left(3-\frac{3x}{8}+x\right) = \left(5-\frac{5x}{8}\right)$$

$\Rightarrow$ 5x + 24 = 40 – 5x

$\Rightarrow$ 10x = 16 $\Rightarrow x = \frac{8}{5}$

So, part of the mixture replaced $= \left(\frac{8}{5}\times\frac{1}{8}\right) = \frac{1}{5}$

58. (3) Let the amount initially the person has = ` x
According to the question,

$$\left(\frac{7}{8}x-1600\right)\times\frac{4}{5}=960$$

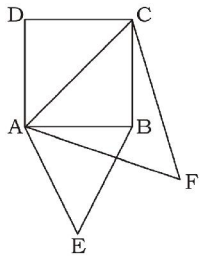
$$\Rightarrow \frac{7}{8}x-1600=1200 \Rightarrow \frac{7}{8}x=2800 \Rightarrow x=3200$$

Hence the person initially had ` 3200

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

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

60. (3)



Here $AC^2 = 2AB^2$
As ΔABE and ΔABC are equiangular so ΔABE ~ ΔABC
[The ratio of the areas of two similar triangles is equal to the ratio of the square of their corresponding sides]

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

61. (1) Students failed in Hindi = 100% – 80% = 20%
Students failed in mathematics = 100% – 75% = 25%
Students failed in both subjects = 18%
Students passed in both subjects
= 100 – (25 + 20 – 18) = 73%
Let total sutdents be x.

$$\Rightarrow \frac{x\times 73}{100}=438 \Rightarrow x=600$$

Total sutdents is 600.

62. (1) Cost of raw material = 4x
Cost of labour = 3x
Cost of miscellaneous = 2x
The total cost = 4x + 3x + 2x = 9x

$$\text{Amount} = \frac{4x\times 110}{100}+\frac{3x\times 108}{100}+\frac{2x\times 95}{100}$$

$$\text{Percentage rise} = \frac{9.54x-9x}{9x}\times 100 = 6\%$$

63. (4) $\sin\frac{\pi}{6}+\cos\frac{\pi}{3}+\tan^3\frac{\pi}{4}$ = sin30° + cos60° + tan 3 45°

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

64. (2) We know that
[Selling price = cost price + profit]

$$\text{Profit at selling price} = \frac{1\rightarrow \text{Profit}}{5\rightarrow \text{S.P.}}$$

$$\text{Profit at cost price} = \frac{1\rightarrow \text{Profit}}{4\rightarrow \text{S.P.}}$$

$$\text{Hence, the selling price} = \frac{5}{4} \text{ of C.P.}$$

$$\frac{5}{4}\text{ of C.P.} = 600 \Rightarrow \text{C.P.} = ` 480$$

To earn a profit of $\frac{5}{8}$ of cost price, selling price must be $\frac{13}{8}$ of CP.

So, $\frac{13}{8}\times \text{C.P.} = \frac{13}{8}\times 480 = ` 780$

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

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

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

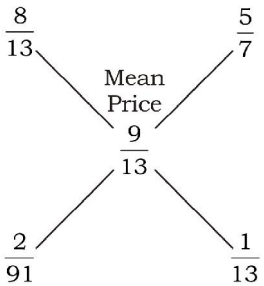
$$\text{Milk in 1 litre mix. in B} = \frac{5}{7} \text{ litre}$$

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

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

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

By the rule of alligation, we have:



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

66. (3) Length of the common tangent = $\sqrt{a^2-(6+3)^2}$

$\therefore 8=\sqrt{a^2-(6+3)^2}$

or, $a^2=64+81=145 \Rightarrow a=\sqrt{145}$ cm

Distance between their centres = $\sqrt{145}$ cm

67. (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

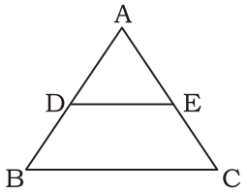
$\therefore$ Required percentage $=\left(\frac{130}{400}\times 100\right)\% = 32.5\%$

68. (1) Ratio of Amount $=\frac{1}{15}:\left(\frac{1}{10}-\frac{1}{15}\right)=\frac{1}{15}:\frac{1}{30}=1:2$

Suresh share = $\frac{2}{3}\times 1500=1000$

Rama share = $\frac{1}{3}\times 1500=500$

69. (4)



$\frac{AD}{DB}=\frac{AE}{AC}=\frac{1}{3}$

$\therefore \Delta ABC \sim \Delta ADE$

$\therefore \frac{DE}{BC}=\frac{1}{3}\Rightarrow DE=\frac{15}{3}=5$ cm

70. (1) $5\tan\theta=4\Rightarrow \tan\theta=\frac{4}{5}=\frac{\text{Perpendicular}}{\text{Base}}$

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

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

71. (1) Let initial amount = Rs. x

$\frac{x}{3}\times\frac{7\times 2}{100}+\frac{2}{5}\times\frac{x\times 10\times 2}{100}+\frac{4\times x\times 12\times 2}{15\times 100}=1430$

$\Rightarrow \frac{14x}{300}+\frac{4x}{50}+\frac{8x}{125}=1430$

$\Rightarrow x=\frac{1430\times 750}{143}=$ Rs.7500

72. (2) $l\cos^2\theta+m\sin^2\theta=\frac{\cos^2\theta(1+\sin^2\theta)}{\cot^2\theta\sin^2\theta}$

$\Rightarrow l\cos^2\theta+\cos^2\theta-m\cos^2\theta=2-m$

$\Rightarrow \cos^2\theta=\frac{2-m}{1-m+1}$ or $\sec^2\theta=\frac{l-m+1}{2m}$

Or, $\tan^2\theta=\frac{l-1}{2-m}\Rightarrow\tan\theta=\sqrt{\frac{l-1}{2-m}}$

73. (3) Volume of the cylinder = $\pi r^2 h$

$=\frac{22}{7}\times 10\times 10\times 21=6600$ cu. cm

Volume of the cone = 6600 – 4400 = 2200 cu. cm

$\therefore 2200=\frac{1}{3}\pi\times 10^2\times h$

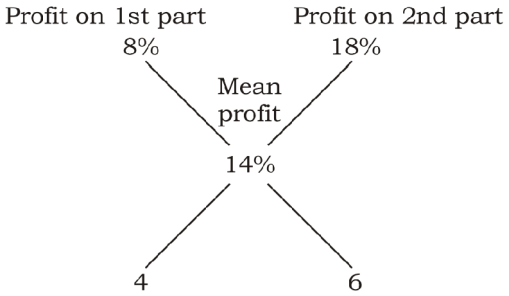
$\Rightarrow 2200=\frac{2200}{21}\times h\Rightarrow h=21$ cm

74. (1) The cost price paid by A

$=2310\times\frac{100}{100+P_1\%}\times\frac{100}{100+P_2\%}$

$=2310\times\frac{100}{100+10}\times\frac{100}{100+5}=$ ` 2000

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



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

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