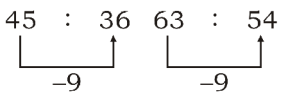
SSC CHSL - CHT1 : 180347 GRAND TEST HINTS AND SOLUTIONS

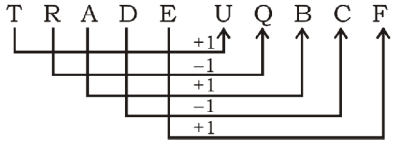
ANSWER KEY

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

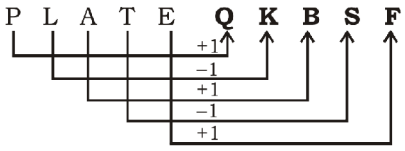
1. (2) As, $9 \times 5 = 45$
and $9 \times 4 = 36$
Similarly, $9 \times 7 = 63$
and $9 \times 6 = 54$
Alternative Method :



2. (4) A surgeon uses forceps, similarly, a blacksmith uses hammer.
3. (2) A Monarch is a type of Butterfly and Cobra is a type of Snake.
4. (1)



Similarly,



5. (4) Worm is the food of snake.
6. (4) Excepts (4), the rest options gives the same result as 19.
7. (4) Except 379, the sum of the digits in rest of the options is 13.
8. (3) Only Renounce has different meaning whereas the other three words have similar meanings.
9. (2)
10. (2) The pattern is × 3, + 4, × 5, + 6, × 7, ...
So, missing term = 1022 + 8 = 1030.
11. (2) $4 = 2 \times 2$
$18 = 3 \times 6$
$48 = 4 \times 12$
$100 = 5 \times 20$
$180 = 6 \times 30$
$294 = 7 \times 42$
$448 = 8 \times 56$
12. (1) $\frac{25+23}{2} = 24$ and $\frac{26+28}{2} = 27$

Therefore $\frac{18+14}{2} = 16$.

13. (4) $4 \times 3 \times 5 \times 2 = 120 \Rightarrow \frac{120}{2} = 60$

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

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

14. (3) Clearly, each word is coded by the numeral which is 1 less than the number of letters in the word.
15. (4) Brother –in- law.
16. (4)
17. (2) Let number of 20 paise coins = x
Then, 25 paise coins = 324 – x
$\Rightarrow 0.2x + (324 - x)0.25 = 71$
$\Rightarrow x = 200$, so, $(324 - x) = 124$ coins.
18. (2) The statement requests people not to use lift while moving down. This implies that the lift may be used to move up and the request has been made so that more people can use the lift for ascending which would otherwise cause more physical stress than going down the stairs. So, we can conclude that only II is implicit.

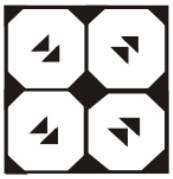
19. (3) In these 2 positions one common face with number 3, is in same position.
Hence 1 is opposite to 6 and 4 is opposite to 2. Therefore 5 is opposite to 3.

20. (3)

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

22. (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 × 9 + 2 × 90 + 3 × 267)
= (9 + 180 + 801) = 990

23. (2)

24. (1) 

25. (3)

51. (1) $$\frac{(3.07)^2+(0.0193)^2}{(0.307)^2+(0.00193)^2}=\frac{(3.07)^2+(0.0193)^2}{\left(\frac{3.07}{10}\right)^2+\left(\frac{0.0193}{10}\right)^2}$$

$$=100\left[\frac{(3.07)^2+(0.0193)^2}{(3.07)^2+(0.0193)^2}\right]=100$$

52. (3) $\tan\theta=\frac{4}{3}$ (given)

$$\therefore \frac{3\sin\theta+2\cos\theta}{3\sin\theta-2\cos\theta}=\frac{3\tan\theta+2}{3\tan\theta-2}$$

$$=\frac{3\times\frac{4}{3}+2}{3\times\frac{4}{3}-2}=\frac{4+2}{4-2}=3$$

53. (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

$$=\left(\frac{1}{20}+\frac{1}{30\times2}\right)=\frac{4}{60}=\frac{1}{15}$$

[$\because$ B works for half day only]

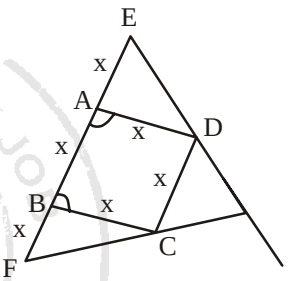
So, A and B together will complete the work in 15 days.

54. (3) $$\frac{\frac{13}{4}-\frac{5}{6}\times\frac{4}{5}}{\frac{13}{3}\div\frac{1}{5}-\left(\frac{3}{10}+\frac{106}{5}\right)}-\left(\frac{3}{2}\times\frac{5}{3}\right)$$

$$=\frac{\frac{13}{4}-\frac{2}{3}}{\frac{13\times5}{3}-\left(\frac{3+212}{10}\right)}-\frac{5}{2}=\frac{\frac{39-8}{12}}{\frac{65}{3}-\frac{215}{10}}-\frac{5}{2}$$

$$=\frac{\frac{31}{12}}{\frac{650-645}{30}}-\frac{5}{2}=\frac{31}{12}\times\frac{30}{5}-\frac{5}{2}$$

$$=\frac{31}{2}-\frac{5}{2}=\frac{31-5}{2}=\frac{26}{2}=13$$

55. (3) 

In DADE, AE = AB $\Rightarrow$ AE = AD
$\therefore \angle E = \angle D = \theta$ (say) $\Rightarrow \angle A = \theta + \theta = 2\theta$
Similarly, In ΔBCE, BE = AB $\Rightarrow$ BF = BC
$\angle C = \angle F = \phi$ (say) $\Rightarrow \angle B = 2\phi$
In rhombus ABCD, $\angle A = \angle B = 180°$
$\Rightarrow 2\theta + 2\phi = 180° \Rightarrow \theta + \phi = 90°$
$\therefore \angle EOF = 90° \Rightarrow ED \perp CF$

56. (1) $57^{25}-1=7^1-1=6$ [$\because 25=4\times6+1$]

57. (3) Let minors be x.
Consumption by adults = 8 × 15 = 120
Total Consumption = (x + 8) × 10.8
Average consumption by minor

$$=\frac{(8+x)10.8-120}{x}=6$$

$\Rightarrow x = 7$

58. (1)

	A	B	C	D
	2	3	3	3
	2	2	4	4
×	2	2	2	5
	8	12	24	60

Required ratio (A : D) = 8 : 60 = 2 : 15

59. (1) $\because x = a^{2/3} - a^{-2/3}$

Cubing both the sides

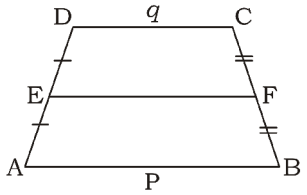
$x^3 = (a^{2/3} - a^{-2/3})^3$

$\Rightarrow x^3 = (a^{2/3})^3 - (a^{-2/3})^3 - 3 \cdot a^{2/3} \cdot a^{-2/3}(a^{2/3} - a^{-2/3})$

$\Rightarrow x^3 = a^2 - a^{-2} - 3 \times 1(x)$

$\Rightarrow x^3 + 3x = a^2 - a^{-2} = a^2 - \frac{1}{a^2}$

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



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

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

61. (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% = ` 62,500

Sum invested at 11% = ` (100000 – 62500) = ` 37,500

62. (2) Average cost of a chair = ` x, then

$x \times 12 + 6 \times 750 = 7800$

$\Rightarrow 12x = 7800 - 4500 = 3300$

$\Rightarrow x = \frac{3300}{12} = ` 275$

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

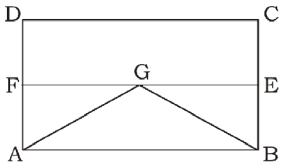
Then, speed of the train $= \frac{150}{100}x = \left(\frac{3}{2}x\right)$ km/h

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

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

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

64. (2) AB || EF || CD. So ABEF is a rectangle



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

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

$= \frac{1}{4}$ (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.

65. (1) $x \propto \frac{1}{y^2 - 1} \Rightarrow x = \frac{k}{y^2 - 1}$

Where k is a constant.

When y = 10, x = 24, then

$\therefore 24 = \frac{k}{10^2 - 1} \Rightarrow 24 = \frac{k}{99} \Rightarrow k = 24 \times 99$

When y = 5, then

$x = \frac{k}{y^2 - 1} = \frac{24 \times 99}{5^2 - 1} = \frac{24 \times 99}{24} = 99$

66. (3) Let the distance be x km.

Total time = 5 hours 48 minutes

$= 5 + \frac{48}{60} = \left(5 + \frac{4}{5}\right)$ hr $= \frac{29}{5}$ hr

$\Rightarrow \frac{29x}{100} = \frac{29}{5} \Rightarrow x = \frac{100}{5} = 20$ km

67. (3) Let the base of triangle be decreased by x%.

According to the question,

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

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

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

68. (1) Let the length of candle be 1.

Rate of burn of first candle = $\frac{1}{4}$ per hour

The rate of burn of second candle = $\frac{1}{3}$ per hour

Let after x hour the ratio be 2 : 1.

$\Rightarrow \frac{4-x}{4} = 2\left(\frac{3-x}{3}\right)$

$\Rightarrow x = 2\frac{2}{5}$ hours $= 2$ hours 24 min.

69. (3) Let money be P.

$\frac{P \times 12 \times 4}{100} - \frac{P \times 15 \times 5}{100} = 1890$

$\Rightarrow \frac{27P}{100} = 1890 \Rightarrow P = \frac{1890 \times 100}{27} = \text{Rs.}7000$

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

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

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

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

71. (2) Total cost of all calculators
= 150 × 250 + 2500 = 40,000
Selling price of all calculators

$= \frac{19}{20} \times (150 \times 320) = 45600$

Profit percentage

$= \left(\frac{45600 - 40000}{40000}\right) \times 100 = \left(\frac{5600}{40000}\right) \times 100 = 14\%$

72. (3) Let the CP be ` 100
After 20% profit, SP = 100 + 100 of 20% = ` 120

Marked price = $120 \times \frac{100}{75} = \frac{120 \times 4}{3} = \text{`}160$

$\therefore$ Required percentage = 160 -100 = ` 60 (which is 60% of 100)

73. (2) 50% of (x – y) = 30% of (x + y)

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

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

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

$\therefore$ Required percentage

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

74. (2) Rate of processing cost of water for industrial, energy and domestic usage = 3 : 5 : 2
In 2006, water usage for industrial, energy and domestic = 25, 26 and 16 litres
In 2009, water usage for industrial, energy and domestic = 49, 35, 30 trillion litres
$\therefore$ Ratio of processing cost for above mentioned usage in 2006 to that in 2009

$= \frac{25 \times 3 + 26 \times 5 + 35 \times 2}{49 \times 3 + 35 \times 5 + 30 \times 2} = \frac{75 + 130 + 70}{147 + 175 + 60}$

$= \frac{275}{382} = 0.72$

75. (1) Usage in energy related sector in 2006 = 26 trillion litres
Usage in energy related sector in 2009 = 35 trillion litres
Required percentage increase

$= \frac{35 - 26}{26} \times 100 = 34.6\%$