



SSC CHSL - CHT1 : 180342 GRAND TEST

HINTS AND SOLUTIONS

ANSWER KEY

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

- (3) Except Kohima, others are state.
- (1) Transaction of second is done through the first.
- (4) The relation is $\sqrt[3]{x} : (\sqrt[3]{x} + 1)^3 + 1$.
Put $x = 8, 27$
For $x = 8$, result $= (\sqrt[3]{8} + 1)^3 + 1 = 27 + 1 = 28$
For $x = 27$, result $= (\sqrt[3]{27} + 1)^3 + 1 = 64 + 1 = 65$

4. (1)

U	S	P	L
↑+1	↑+3	↑+3	↑+1
T	P	M	K

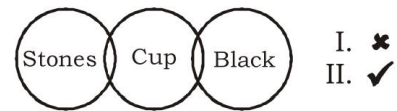
Reverse → K M P T

L	J	G	C
↑+1	↑+3	↑+3	↑+1
K	G	D	B

Reverse → B D G K

- (1)

A	C	D	F	T	U	O	P
↓+2	↓+2	↓+2	↓+2	↓+1	↓+1	↓+1	↓+1
H	I	V	W	F	G	I	J
↑+1	↑+1	↑+1	↑+1	↑+1	↑+1	↑+1	↑+1
- (4) Only 83 is a prime number.
- (1) All except Taxi are pulled by living being.
- (4) $(101 + 15) - (43 + 35) = 116 - 78 = 38$
 $(48 + 184) - (56 + 34) = 232 - 90 = 142$
- (2) $(15 - 5) + (6 \times 2) = 22$
 $(6 - 2) + (5 \times 3) = 19$
 $(14 - 10) + (3 \times 2) = 10$
- (2) $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{7}{16}, \frac{9}{32}, \frac{11}{64}, ?$
Here we have two series-
1st series:- 1, 3, 5, 7, 9, 11, 13
 $\downarrow +2 \quad \downarrow +2 \quad \downarrow +2 \quad \downarrow +2 \quad \downarrow +2 \quad \downarrow +2$
2nd series:- 2, 4, 8, 16, 32, 64, 128
 $\downarrow \times 2 \quad \downarrow \times 2 \quad \downarrow \times 2 \quad \downarrow \times 2 \quad \downarrow \times 2 \quad \downarrow \times 2$
So next term is $\frac{13}{128}$.
- (2) The pattern is: +20.5, +22.5, +24.5, +26.5
So, Required number = $138 + 24.5 = 162.5$
- (1) Here, the answer will be the product of number of consonants and vowels in the given word.
So, required answer = $5 \times 3 = 15$.
- (4) 8
- (1) Only conclusion II follows.



- (3)

Word	A	R	D	E	N	T
Code	5	4	3	6	2	1
- (3) Sunita's Grandfather's only son is his father and father's son is his brother.
- (3)

Q	P	N	K	A	Z	X	U
↓+1	↓+1	↓+3	↓+3	↓+1	↓+1	↓+3	↓+3
U	T	R	N	S	R	P	M
↑+1	↑+1	↑+4	↑+4	↑+1	↑+1	↑+3	↑+3

$100 - x = h$... (i)

$\tan 30^\circ = \frac{h}{x} \Rightarrow \frac{1}{\sqrt{3}} = \frac{h}{x}$

$x = \sqrt{3}h$... (ii)

From (i) and (ii), we get

$100 - \sqrt{3}h = h \Rightarrow h(\sqrt{3} + 1) = 100$

$\Rightarrow h = \frac{100}{\sqrt{3} + 1} \times \frac{\sqrt{3} - 1}{\sqrt{3} - 1} = \frac{100(\sqrt{3} - 1)}{2}$

$\therefore h = 50(\sqrt{3} - 1) \text{ m}$

61. (2) Per hour wages = $\frac{2400}{60} = \text{Rs.}40.$

Per hour wages after increase = $40 \times \frac{140}{100} = \text{Rs.}56.$

Work hours after reduction = $60 \times \frac{250}{3 \times 100} = 50 \text{ hrs.}$

New weekly wages = $56 \times 50 = \text{Rs.} 2800$

Increased in wages = $2800 - 2400 = \text{Rs.} 400$

$\therefore \% \text{ change} = \frac{400}{2400} \times 100 = 16\frac{2}{3}\%$

62. (1) $\frac{a+b}{\sqrt{ab}} = \frac{4}{1} \Rightarrow \frac{a+b}{2\sqrt{ab}} = \frac{2}{1}$

Applying Componendo and Dividendo

$\Rightarrow \frac{a+b+2\sqrt{ab}}{a+b-2\sqrt{ab}} = \frac{2+1}{2-1}$

$\Rightarrow \frac{(\sqrt{a} + \sqrt{b})^2}{(a-b)^2} = \frac{3}{1} \Rightarrow \frac{\sqrt{a} + \sqrt{b}}{\sqrt{a} - \sqrt{b}} = \frac{\sqrt{3}}{1}$

$\Rightarrow \sqrt{a} + \sqrt{b} = \sqrt{3} \times \sqrt{a} - \sqrt{3} \times \sqrt{b}$

$\Rightarrow (\sqrt{3} + 1)\sqrt{b} = (\sqrt{3} - 1)\sqrt{a} \Rightarrow \frac{\sqrt{3} + 1}{\sqrt{3} - 1} = \frac{\sqrt{a}}{\sqrt{b}}$

$\Rightarrow \frac{a}{b} = \frac{(\sqrt{3} + 1)^2}{(\sqrt{3} - 1)^2} = \frac{3 + 1 + 2\sqrt{3}}{3 + 1 - 2\sqrt{3}}$

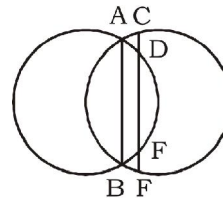
$= \frac{4 + 2\sqrt{3}}{4 - 2\sqrt{3}} = \frac{2 + \sqrt{3}}{2 - \sqrt{3}} = (2 + \sqrt{3}) : (2 - \sqrt{3})$

63. (2) Teacher's age
 $= 16 \times 10 - 19 \times 4 - 5 \times 10$
 $= 160 - 76 - 50 = 34 \text{ years}$

64. (2) We have the formula as-

$\frac{(2n-4) \times 90}{n} = \frac{(2 \times 8 - 4) \times 90}{8} = \frac{1080}{8} = 135^\circ$

65. (3)



$CD = EF = 4.5 \text{ Cm}$

66. (3) Minimum value of

$4\sec^2 \theta + 9\text{cosec}^2 \theta = (\sqrt{4} + \sqrt{9})^2 = (5)^2 = 25.$

67. (1) $\cos A + \sin A = \sqrt{2} \cos A$

$\sin A = (\sqrt{2} - 1) \cos A$

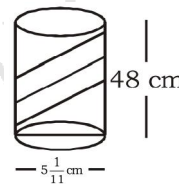
$\frac{\sin A}{\sqrt{2} - 1} = \cos A \Rightarrow \frac{\sin A}{\sqrt{2} - 1} \times \frac{\sqrt{2} + 1}{\sqrt{2} + 1} = \cos A$

$\sin A(\sqrt{2} + 1) = \cos A$

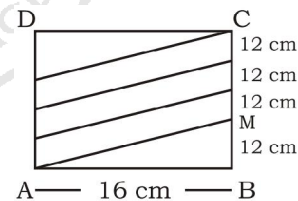
Now, $\cos A - \sin A$

$= \sin A(\sqrt{2} + 1) - \sin A = \sqrt{2} \sin A$

68. (1)



when we open it



the base circumference

$= 2\pi r = 2 \times \frac{22}{7} \times \frac{56}{11} \times \frac{1}{2} = 16 \text{ cm}$

$\therefore AM = \text{length of one complete turn}$

$= \sqrt{16^2 + 12^2} = 20 \text{ cm}$

$\therefore \text{total length} = 4 \times 20 = 80 \text{ cm}$

69. (1) Let C.P of article = 100 unit

\therefore Total profit

$= 100 \times \frac{4}{5} \times \frac{15}{100} - 100 \times \frac{1}{5} \times \frac{10}{100} = 12 - 2 = 10 \text{ unit}$

Now ATQ,

10 unit \rightarrow Rs. 45

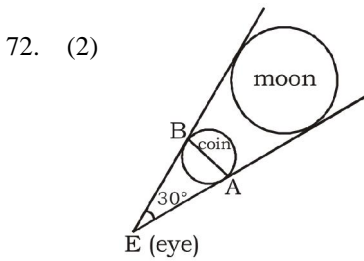
$\therefore 100 \text{ unit} \rightarrow \frac{45}{10} \times 100 = \text{Rs.}450$

70. (4) Sumit's present age = $2x$ years
 Prakash's present age = $3x$ years
 $\therefore 3x - 2x = 6$
 $x = 6$
 \therefore Required ratio
 $= (2 \times 6 + 6) : (3 \times 6 + 6) = 18 : 24 = 3 : 4$

71. (2)
$$\frac{\cos^2 60^\circ + 4 \sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \cos^2 30^\circ}$$

$$= \frac{\left(\frac{1}{2}\right)^2 + 4 \times \left(\frac{2}{\sqrt{3}}\right)^2 - 1}{1} = \frac{1}{4} + 4 \times \frac{4}{3} - 1$$

$$= \frac{1}{4} + \frac{16}{3} - 1 = \frac{3 + 64 - 12}{12} = \frac{55}{12}$$



$$\theta = 30^\circ = \left(\frac{30}{60}\right)^\circ = \left(\frac{1}{2}\right)^\circ$$

$$= \left(\frac{1}{2} \times \frac{\pi}{180}\right)^c = \left(\frac{\pi}{360}\right)^c$$

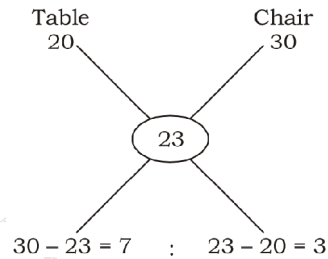
$$\theta = \frac{\text{Arc}}{\text{radius}} = \frac{\pi}{360} = \frac{4.4}{r}$$

$$\Rightarrow r = \frac{4.4 \times 360}{\pi} \text{ cm} = \frac{4.4 \times 360}{22} \times 7$$

$r = 504 \text{ cm}$

73. (3) Formula:- $(B)^3 + 3(B)^2 - (B)^1 + (B)^2$
 $= B$ denotes base = 2
 $= (2)^3 + 3(2)^2 - (2)^1 + (2)^2$
 $= 8 + 12 - 2 + 4 = 22 + 26$
 $= 48$

74. (3) By the method of Alligation,



$$= 7 : 3$$

\therefore Cost price of table

$$= \frac{2000}{7+3} \times 7 = \frac{2000}{10} \times 7 = \text{Rs.}1400$$

75. (3) Let the required side of triangle be x cm.

$$\frac{x^2}{7^2} = \frac{256}{196} \Rightarrow x^2 = \frac{256 \times 49}{196} \Rightarrow x = 8 \text{ cm}$$

