



SSC CHSL - CHT1 : 180231 GRAND TEST
HINTS AND SOLUTIONS

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

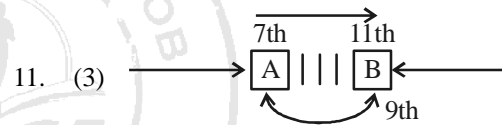
7. (3) $68 - 25 = 43$
 $71 - 28 = 43$ Odd numbers
 $51 - 32 = 19$

$59 - 43 = 16$: Even number

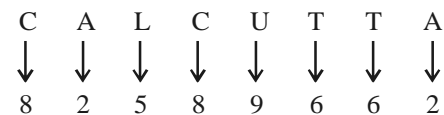
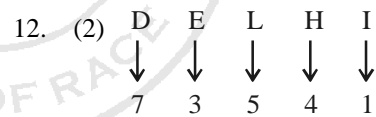
8. (1) $K \xrightarrow{+3} N \xrightarrow{-1} M$
 $J \xrightarrow{+3} M \xrightarrow{-2} K$
 $C \xrightarrow{+3} F \xrightarrow{-2} D$
 $G \xrightarrow{+3} J \xrightarrow{-2} H$

9. (3) $2 \times 1 + 3 = 5$
 $5 \times 2 + 6 = 16$
 $16 \times 3 + 9 = 57$
 $57 \times 4 + 12 = 240$

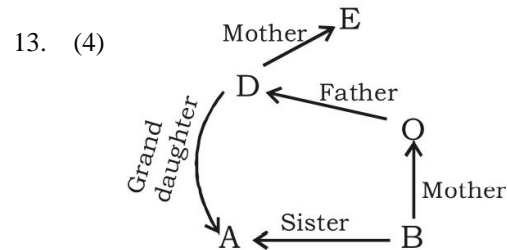
10. (4) $A \xrightarrow{+2} C \xrightarrow{+3} F \xrightarrow{+4} J \xrightarrow{+5} O$
 $B \xrightarrow{+3} E \xrightarrow{+4} I \xrightarrow{+5} N \xrightarrow{+6} T$
 $C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{+2} I \xrightarrow{+2} K$



Total number of people in the row = $11 + 9 - 1 = 19$

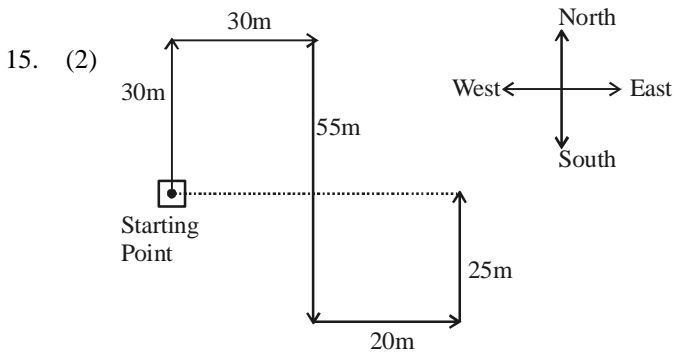


Therefore,

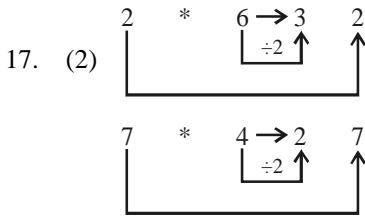
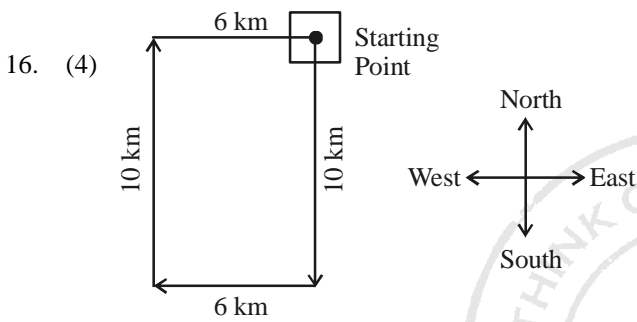


14. (4) As, we can see 2 R's in the word RIVER, which is not present in the given word ENVIRONMENT.

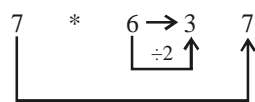
- (2) Stomach is a part of body. Similarly, library has different kinds of books.
- (2) $34 \Rightarrow 3^4 = 81$
 $25 \Rightarrow 2^5 = 32$
- (3) $8 - 3 = 5$; $5 - 1 = 4$
 $6 - 5 = 1$; $1 - 1 = 0$
Alternatively, $8 \times 3 = 24$: Its unit's digit is 4.
 $6 \times 5 = 30$: Its unit's digit is 0.
- (2) Paralysis is a loss of feeling in or control of all or part of the body, caused by a disease of or an injury to the nerves. Madness refers to the state of being mentally ill.
- (1) Teaching is different from the other three words.
- (4) $328 \Rightarrow 8^2 \times 3 = 64 \times 3 = 192 \Rightarrow 328 - 192$
 $215 \Rightarrow 5^1 \times 2 = 10 \Rightarrow 215 - 10$
 $342 \Rightarrow 2^4 \times 3 = 16 \times 3 = 48 \Rightarrow 342 - 48$
 $235 \Rightarrow 5^3 \times 2 = 125 \times 2 = 250 \neq 258 \Rightarrow 235 - 258$



Required distance = 30m + 20 m = 50 m



Therefore,



18. (4)

$\times \Rightarrow +$	$\div \Rightarrow -$
$+ \Rightarrow \div$	$- \Rightarrow \times$

$$14 \times 4 \div 70 + 10 - 2 = ?$$

$$\Rightarrow ? = 14 + 4 - 70 \div 10 \times 2$$

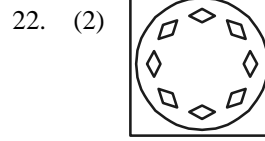
$$\Rightarrow ? = 14 + 4 - 7 \times 2$$

$$\Rightarrow ? = 18 - 14 = \boxed{4}$$

19. (4) $12 \times 18 = 24 \times 9$, $16 \times 24 = 8 \times 48$,
 $15 \times 8 = 24 \times 5$

20. (2) $12 \times 6 + 18 \times 4 = 144 \Rightarrow \sqrt{144} = 12$
 $18 \times 8 + 36 \times 5 = 144 + 180 = 324 \Rightarrow \sqrt{324} = 18$
 $5 \times 8 + 10 \times 6 = 40 + 60 = 100 \Rightarrow \sqrt{100} = 10$

21. (3) $ab \boxed{c} a/bb \boxed{c} a/ \boxed{c} b \boxed{c} a/db \boxed{c} a$



23. (3)
 24. (3) $(10)^2 \geq 10 \times 10$
 $\Rightarrow 100 = 100$
 25. (2) C \Rightarrow 02, 11, 20, 31, 43
 D \Rightarrow 00, 14, 23, 34, 42
 G \Rightarrow 56, 65, 77, 87, 97
 E \Rightarrow 04, 13, 24, 33, 40

Option	C	A	G	E
(1)	95	82	31	14
(2)	20	00	65	40
(3)	14	20	41	86
(4)	00	21	41	95

51. (3) Let the highest score be x.
 Then, lowest score = (x - 150)
 Then, $(50 \times 40) - [x + (x - 150)] = 38 \times 48$
 $\Rightarrow 2x = 2000 + 150 - 1824$
 $\Rightarrow 2x = 326 \Rightarrow x = 163$
 \therefore Lowest score = 163 - 150 = 13
52. (2) LCM of indices of surds = 12
 $\therefore \sqrt[3]{4} = \sqrt[12]{4^4} = \sqrt[12]{256}$
 $\sqrt{3} = \sqrt[12]{3^6} = \sqrt[12]{729}$
 $\sqrt[6]{25} = \sqrt[12]{625}$
 $\sqrt[12]{289}$
 \therefore Largest number = $\sqrt{3}$ and smallest number = $\sqrt[3]{4}$
53. (2) If the numbers be 3x and 4x, then HCF = x = 5
 \therefore Numbers = 15 and 20
 \therefore LCM = 60
54. (2) Lowest score = x, Highest score = x + 100
 $\therefore 28 \times 38 + x + x + 100 = 30 \times 40$
 $\Rightarrow 1064 + 2x + 100 = 1200 \Rightarrow 2x = 2000 - 1164 = 36$
 $\therefore x = 18$.
55. (1) Third number = $\frac{a}{5}$

First number of next sequence = $\frac{a}{5} + 3$

$$\therefore \frac{a}{5} + 3 + \frac{a}{5} + 4 + \frac{a}{5} + 5 + \frac{a}{5} + 6 + \frac{a}{5} + 7 = b$$

$$\Rightarrow a + 25 = b \Rightarrow 25 = b - a$$

$$\therefore \frac{b - a}{100} = \frac{25}{100} = \frac{1}{4}$$

56. (2) $\frac{P-Q}{2} = (P+Q) \times \frac{30}{100}$
 $\Rightarrow 5(P-Q) = (P+Q) \times 3$
 $\Rightarrow 5P - 3P = 5Q + 3Q \Rightarrow 2P = 8Q$
 $\Rightarrow P = 4Q = 4 \times \frac{P \times x}{100} \Rightarrow \frac{4x}{100} = 1 \Rightarrow x = 25$

57. (2) $\frac{\Delta ABC}{\Delta DEF} = \frac{AB^2}{DE^2} \Rightarrow \frac{20}{45} = \frac{25}{DE^2}$
 $\Rightarrow DE^2 = \frac{45 \times 25}{20} = \frac{225}{4}$
 $\therefore DE = \frac{15}{2} = 7.5 \text{ cm}$

5. (1) Let the speed of the stream be x m/h.
 Then,
 Speed downstream = $(8 + x)$ m/h,
 Speed upstream = $(8 - x)$ m/h
 $\therefore \frac{60}{(8-x)} - \frac{60}{(8+x)} = 4$
 Put $x = 2$, then it will satisfy the equation
 $\Rightarrow \frac{60}{8-2} - \frac{60}{8+2} = \frac{60}{6} - \frac{60}{10} \Rightarrow 10 - 6 = 4 \Rightarrow 4 = 4$
 \therefore Speed of Stream = 2 miles/hr

59. (2) 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
 $\therefore \frac{60}{x} - \frac{60}{\frac{3}{2}x} = \frac{125}{10 \times 60}$
 $\Rightarrow \frac{60}{x} - \frac{40}{x} = \frac{5}{24} \Rightarrow x = \left(\frac{20 \times 24}{5}\right) = 96 \text{ km/h}$
 \therefore Speed of the car = 96 km/h

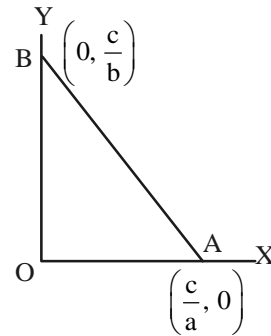
60. (3) Area of the base = $\frac{\sqrt{3}}{4} \times 4^2 = 4\sqrt{3}$ sq. cm.
 Median of the base = $\sqrt{4^2 - 2^2} = 2\sqrt{3}$ sq. cm
 Distance of centroid from the side = $\frac{2\sqrt{3}}{6}$ cm
 $\therefore \sqrt{(2h)^2 - h^2} = \frac{2\sqrt{3}}{3} \Rightarrow \sqrt{3}h = \frac{2\sqrt{3}}{3} \Rightarrow h = \frac{2}{3}$ cm

Volume = $\frac{1}{3} \times \text{Area of base} \times \text{height}$
 $= \frac{4\sqrt{3} \times 2}{3 \times 3} = \frac{8\sqrt{3}}{9}$ cu. cm

61. (3) $ax + by = c$ (given)

When $x = 0, y = \frac{c}{b}$

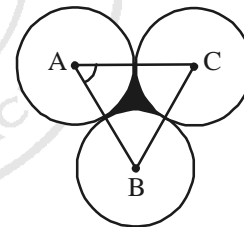
When $y = 0, x = \frac{c}{a}$



$\therefore OA = \frac{c}{a}; OB = \frac{c}{b}$

\therefore Area of $\Delta OAB = \frac{1}{2} \times \frac{c}{a} \times \frac{c}{b} = \frac{c^2}{2ab}$ sq. units

62. (4)



$AB = BC = CA = 2a$ cm.

$\angle BAC = \angle ACB = \angle ABC = 60^\circ$

Area of ΔABC

$= \frac{\sqrt{3}}{4} \times (\text{side})^2 = \frac{\sqrt{3}}{4} \times 4a^2 = \sqrt{3}a^2$ sq. cm.

Area of three sectors = $3 \times \frac{60}{360} \times \pi \times a^2 = \frac{\pi a^2}{2}$ sq. cm.

Area of the shaded region

$= \sqrt{3}a^2 - \frac{\pi}{2}a^2 = \left(\frac{2\sqrt{3} - \pi}{2}\right)a^2$ sq. cm.

63. (2) Remaining distance = 3 km

and Remaining time = $\left(\frac{1}{5} \times 50\right)$ min = 10 min = $\frac{1}{6}$ hr.

\therefore Required speed = (3×6) km/hr = 18 km/hr

64. (3) Total profit required = ` (42 × 18) = ` 756
 Profit on 22 sarees = ` (460 + 144) = ` 604
 Profit on 20 sarees = ` (756 - 604) = ` 152

$$\text{Average profit on these sarees} = \left(\frac{152}{24} \right) = ` 6.33.$$

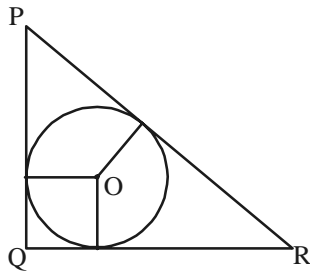
65. (3) Percentage decrease

$$= \left(-2x + \frac{x^2}{100} \right) \% = (-50 + 6.25)\% = -43.75\%$$

66. (1) If C.P. of article be Rs. x, then

$$x \times \frac{116}{100} + 200 = \frac{x \times 120}{100}$$

$$\Rightarrow x \times \frac{4}{100} = 200 \Rightarrow x = \frac{200 \times 100}{4} = ₹ 5000$$



67. (4)

$$PR^2 = PQ^2 + QR^2 = 3^2 + 4^2 = 25$$

$$\therefore PR = \sqrt{25} = 5 \text{ cm}$$

$$r = \frac{\text{Area of triangle}}{\text{Semi-perimeter of triangle}} = \frac{\frac{1}{2} \times 3 \times 4}{\frac{3+4+5}{2}} = \frac{6}{6} = 1 \text{ cm}$$

68. (1) $\frac{\sin 2\theta + \sin \theta}{\cos 2\theta + \cos \theta + 1} = \frac{2 \sin \theta \cdot \cos \theta + \sin \theta}{2 \cos^2 \theta - 1 + \cos \theta + 1}$

$$= \frac{\sin \theta (2 \cos \theta + 1)}{2 \cos^2 \theta + \cos \theta} = \frac{\sin \theta (2 \cos \theta + 1)}{\cos \theta (2 \cos \theta + 1)}$$

$$= \frac{\sin \theta}{\cos \theta} = \tan \theta = \sqrt{\tan^2 \theta} = \sqrt{\sec^2 \theta - 1}$$

69. (3) Let the ratio be x : (x + 60)

$$\text{Then, } \frac{x}{(x+60)} = \frac{2}{7}$$

$$\Rightarrow 7x = 2x + 120 \Rightarrow x = 24$$

$$\therefore \text{Required ratio} = 24 : 84 = 2 : 7$$

70. (2) If the height of the godown be h metre, then

$$2(15 \times 12) = 2 \times h(15 + 12)$$

$$\Rightarrow 27h = 15 \times 12$$

$$\Rightarrow h = \frac{15 \times 12}{27} = \frac{20}{3} \text{ metre}$$

$$\therefore \text{Volume of the godown} = \frac{15 \times 12 \times 20}{3} = 1200 \text{ cu. m.}$$

71. (2) Number of brown socks = x

Price of brown socks = Rs. y per pair

Price of black socks = Rs. 2y per pair

$$\therefore 4y + x \times 2y = \frac{150}{100} (4 \times 2y + xy)$$

$$\Rightarrow 4 + 2x = \frac{3}{2} (8 + x) \Rightarrow 8 + 4x = 24 + 3x$$

$$\therefore x = 24 - 8 = 16$$

$$\therefore \text{Required ratio} = 4 : 16 = 1 : 4$$

72. (2) Required difference = 1065 - 1030 = 35

73. (2) Total number of students playing football = 900

$$\therefore \frac{x \times 900}{100} = 175 \Rightarrow x = \frac{175}{9} = 19 \frac{4}{9}$$

74. (4) Total number of players

School E \Rightarrow 905

School C \Rightarrow 880

75. (2) $\frac{130 \times x}{100} = 65 \Rightarrow x = \frac{65 \times 100}{130} = 50$