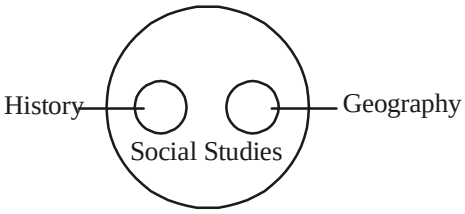
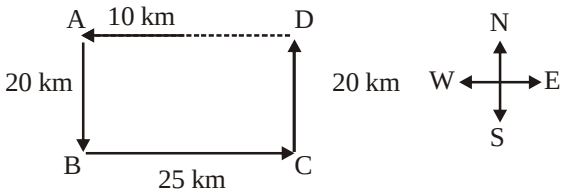
SSC CHSL - CHT1 : 180115 GRAND TEST HINTS AND SOLUTIONS

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

1. (2) Except Foible, all others are type of strange behaviour.
2. (4) Except Fathom, we know the shape of others.
3 (2) QSO is correct option among all options.
4. (1) As, Doctor works in Hospital. Similarly, Teacher works in School.
5. (3) As, every year International Literacy Day is celebrated on September 8. Similarly, every year International Women's Day is celebrated on March 8.
6. (1)
7. (2)
8. (4) Except Canada, all other are continent while Canada is one of the country in North America continent.
9. (1) $\boxed{3+2+4+8} = 17$ [Odd number]
   $4 + 2 + 3 + 9 = 18$ [Even number]
   $1 + 2 + 4 + 7 = 14$ [Even number]
   $2 + 3 + 4 + 9 = 18$ [Even number]
10. (2) The given number series is based on the following pattern :
    $2 + 1 = 3$
    $3 + (1 \times 3) = 3 + 3 = 6$
    $6 + (3 \times 3) = 6 + 9 = 15$
    $15 + (9 \times 3) = 15 + 27 = 42$
    $42 + (27 \times 3) = 42 + 81 =$ **123**.
11. (2) As, perch is found in fresh water, in the same way Cod is found in Salt ater.
12. (1) Answer figure (a) will complete the pattern of the question figure.
13. (2) 12 8 14 6 16 **4**
    +2 +2
    –2 –2
14. (3) According to the question, Varun is younger than Sandeep by 50 weeks and 300 days or 650 days.
    $\because \frac{650}{7} = 92 \text{ weeks} + 6 \text{ days}$
    $\therefore$ Varun born day = Tuesday – 6 = Wednesday
15. (2)
16. (3) According to the condition,
    It is clear that the relation between Naksha and Nisha is of Niece and Aunt.
17. (4)
18. (2) 2 1 5 0 0
    Q A Z T T
19. (2) A = 17 years
    B = 17 – 5 = 12 years
    C = 1 – 4 = 8 years
    D = 12 + 3 = 15 years
20. (3) History and Geography are the sub-parts of Social Studies.



21. (2) The path of Laxmi's movement will be as given below,



The required distance(OD) = BC-OA = 25-10=15 Km
22. (2) $(2)^2 + 3 = 4 + 3 = 7$
Similarly, $(6)^2 + 3 = 36 + 3 = 39$.

23. (4) The age of two daughters = 22 x 2 = 44 yeas
Therefore, The age of their mother = 44 + 6 = 50 years

24. (3) After purchasing the watch, remaining amount of Ali

$$= 320 - 320 \times \frac{3}{4} = 320 - 80 \times 3 = (320 - 240) = 80$$

After purchasing the pen, remaining amount of Ali

$$= 80 - 80 \times \frac{1}{8} = 80 - 10 = 70 \text{ Rs.}$$

25. (1) Answer figure (a) is right image of the given figure.

51. (3) The equation the circle is
$(x + 1)(x + 2) + (y - 1)(y + 3) = 0$
$\Rightarrow x^2 + y^2 + 3x + 2y - 1 = 0$
On comparing with the standard equation of circle
$x^2 + y^2 + 2gx + 2fy + c = 0$

$g = \frac{3}{2}$, $f = 1$, $c = -1$

Rad. of the circle = $\sqrt{g^2 + f^2 - c} = \sqrt{\frac{9}{4} + 2} = \frac{\sqrt{17}}{2}$

Area of the circle = $\pi r^2 = \pi \times \left(\frac{\sqrt{17}}{2}\right)^2 = \frac{17}{4}\pi$ sq. units.

52. (2) Difference = 150 – 104 = 46.

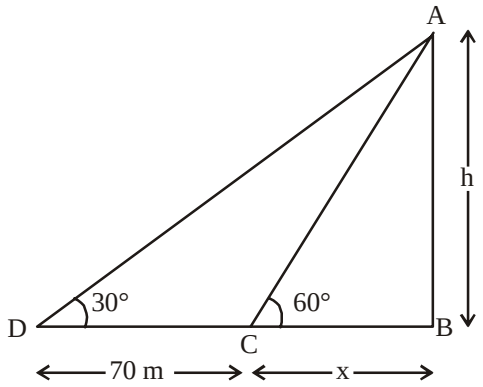
53. (3) Average production of steel = 77.10 (see aove solution)

54. (4) Difference of production of steel in years 1923 and 1924

$= 77.23 - 76.23 = 1 million tone$

1 MT = $100.17 \times \frac{\times}{100} \Rightarrow \times = \frac{100}{100.17} = 0.1\%$

55. (2) Let the height of a tower AB be h m and BC = x m



In ΔABC,

$\tan 60° = \frac{AB}{BC}$

$\Rightarrow \sqrt{3} = \frac{h}{x} \Rightarrow x = \frac{h}{\sqrt{3}}$ ...(i)

Now, in ΔABD

$\tan 30° = \frac{AB}{BD}$

$\Rightarrow \frac{1}{\sqrt{3}} = \frac{h}{x + 70}$

$\Rightarrow h\sqrt{3} = x + 70$

$\Rightarrow h\sqrt{3} = \frac{h}{\sqrt{3}} + 70$ (From eq. i)

$\Rightarrow 3h = h + 70\sqrt{3} \Rightarrow 2h = 70\sqrt{3} \Rightarrow h = 35\sqrt{3}$ m

56. (4) The difference between circumference and diameter of a circle = 150

$\Rightarrow 2\pi r - 2r = 150 \Rightarrow 2r(\pi - 1) = 150$

$\Rightarrow 2r\left(\frac{22}{7} - 1\right) = 150 \Rightarrow 2r\left(\frac{15}{7}\right) = 150$

$\therefore r = \frac{150 \times 7}{15 \times 2} = 35$ m

57. (2) Let MP = Rs. 100

SP = $\left(100 - \frac{1}{4} \times 100\right) = \text{Rs.}75$

CP = $75 \times \frac{100}{(100 - 15)} = \frac{75 \times 100}{85} = \text{Rs.}\frac{1500}{17}$

$\therefore \text{Ratio} = \frac{1500}{17 \times 75} = \frac{20}{17} = 20 : 17$

58. (3) $\sin B = \frac{1}{2} = \sin 30°$

$\Rightarrow B = 30°$
Now, $3\cos B - 4\cos^2 B = 3\cos 30° - 4\cos^3 30°$

$$= 3 \times \frac{\sqrt{3}}{2} - 4 \times \frac{3\sqrt{3}}{8} = 0$$

59. (2) $2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta) + 1$

$= 2[(\sin^2\theta)^3 + (\cos^2\theta)^3] - 3[(\sin^2\theta)^2 + (\cos^2\theta)^2] + 1$

$= 2[1^3 - 3\sin^2\theta.\cos^2\theta.(1)] - 3[(1)^2 - \sin^2\theta.\cos^2\theta] + 1$

$= 2 - 6\sin^2\theta\cos^2\theta - 3 + 6\sin^2\theta\cos^2\theta + 1$
$= 2 - 3 + 1 = 0$

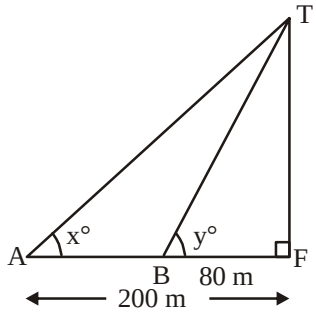
60. (3) Let the core of cube = $\times$ unit
Volume = $\times^3 cu$ unit
As per question,
Reducing 25% of side

$$\times - \times \times \frac{25}{100} = \frac{75\times}{100} = \frac{3}{4}\times$$

New volume = $(\text{side})^3 = \left(\frac{3}{4}\times\right)^3 = \frac{27}{64}\times^3$

$\therefore$ Required ratio = $\frac{X^3}{\frac{27X^3}{64}} = \frac{64X^3}{27X^3} = \frac{64}{27} = 64:27$

61. (2) Given that, $\tan X° = \frac{2}{5}$



In ΔTFA, $\tan x° = \frac{TF}{200} \Rightarrow \frac{2}{5} = \frac{TF}{200}$

TF = 80 m

$\because \angle TFB = 90°$ and TF = BF

$\therefore \angle y° = \angle BTF$

$\Rightarrow \angle BTF = \frac{180-90}{2} = \frac{90}{2} = 45°$

62. (4) Height of pole = 15 metre
Speed of climbing = 5 metre/min
Speed of sliding = 3 metre/min
$\therefore$ Distance climbed by monkey in 11 min.
= 5 × 6 – 3 × 5 = 15 m
$\therefore$ Required time = 11 min.

63. (3)

64. (4) Let the sides of a triangle be 5x m, 6x m and 7x m
Perimeter of a triangle = 54

$\Rightarrow 5x + 6x + 7x = 54$

$\Rightarrow 18x = 54 \Rightarrow x = 3$

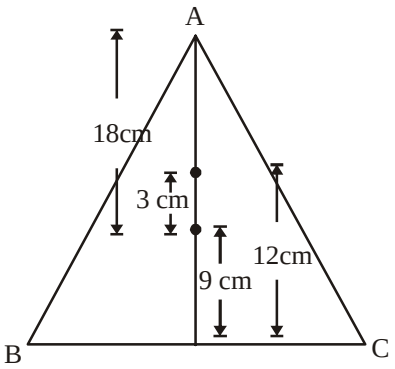
$\therefore$ Sides of a triangle are 15 m, 18 m and 21 m

$\therefore$ Area of a triangle

$= \sqrt{27(27-15)(27-18)(27-21)}$

$= \sqrt{27\times12\times9\times6} = \sqrt{17496} = 54\sqrt{6}\ \text{m}^2$

65. (3)



$AG = \frac{2}{3}\times 27 = 18$ cm

GD = 27 – 18 = 9 cm, ND = 12 cm
GN = ND – GD = 12 – 9 = 3 cm.

66 (2) Let the speed of train on onward journey be x km/h.
Then, the speed of train on return journey = 0.8 km/h.

Total time = $\frac{500}{x} + \frac{1}{2} + \frac{500}{0.8x}$

$\Rightarrow 23 = \frac{1125}{x} + \frac{1}{2}$

$\Rightarrow x = 1125\times\frac{2}{45} = 50$ km/h

$\therefore$ Speed of train on return journey = 40 km/h.

67. (3) Let the first instalment be 'a' and the common difference between two consecutive instalments be 'd'. Using the formula for the sum of an AP.

$S_n = \frac{n}{2}[2a + (n-1)d]$

We have $3600 = \frac{40}{2}[2a + (40-1)d] = 20(2a + 39d)$

$\Rightarrow 180 = 2a + 39d$ ...(1)

Again, $2400 = \frac{30}{2}[2a + (30-1)d]$

$\Rightarrow 160 = 2a + 29d$ ...(2)

Solving Eqs. (1) and (2),
20 = 10d $\Rightarrow$ d = 2
$\therefore$ 180 = 2a + 39 × 2
$\Rightarrow 2a = 102 \Rightarrow a = 51$
Value of 8th instalment = 51 + (8 – 1) × 2
= 51 + 14 = Rs. 65

68. (2) It lies outside the triangle.

69. (3) LCM of 12, 18, 21, 28 = 252
So, the greatest number of four digits = 252 × 39 = 9828

70. (3) $a = (\sqrt{3}+\sqrt{2})^{-3}$, $b = (\sqrt{3}-\sqrt{2})^{-3}$

$a \cdot b = [(\sqrt{3}+\sqrt{2})(\sqrt{3}-\sqrt{2})^{-3}] = 1$

$\Rightarrow (a+1)^{-1} + (b+1)^{-1}$

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

$= \frac{a+b+2}{a+b+2} = 1$ $[\because ab = 1]$

71. (1) Here, $\tan(A+B) = \sqrt{3} \Rightarrow \tan(A+B) = \tan 60°$

$\therefore A + B = 60°$ ...(i)

and $\tan(A-B) = \frac{1}{\sqrt{3}}$

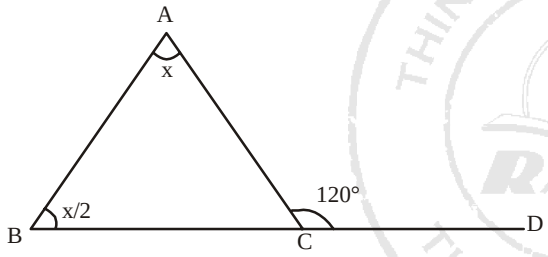
$\Rightarrow \tan(A-B) = \tan 30°$

$\therefore A - B = 30°$ ...(ii)

On solving (i) and (ii), we get

$\angle A = 45°$

72. (4) Here, $\angle ACD = 120°$ and



$\angle ABC = \frac{1}{2}\angle CAB$

Now, $\angle ACB + \angle ACD = 180°$ (Linear pair)

$\Rightarrow \angle ACB + 120° = 180° \Rightarrow \angle ACB = 60°$

Let $\angle CAB$ be x. Then, $\angle ABC = \frac{1}{2}x$

In ΔABC,

By angle sum property,

$x + \frac{1}{2}x + 60° = 180° \Rightarrow \frac{3}{2}x = 120° \Rightarrow x = \frac{120° \times 2}{3} = 80°$

$\therefore \angle ABC = \frac{80°}{2} = 40°$

73. (3) $\sqrt{33} = 5.745$

$\sqrt{\frac{3}{11}} = \sqrt{\frac{3\times11}{11\times11}} = \sqrt{\frac{33}{121}} = \frac{\sqrt{33}}{11} = \frac{5.745}{11} = 0.5223$

74. (3) Average higher temperature of four days = 25°C

Total higher temperature of four days = 4 × 25 = 100°C

Average temperature of four days = 25.5°C

Total temperature of a week = 7 × 25.2 = 102°C

Average temperature of a week = 7 × 25.2 = 176.4°C

Hence, temperature of fourth day = (100 + 102) – 176.4

= 25.6°C.

75. (3) According to the question,

Let the length of train is l m. (Here s_1 is the speed at which the train crosses the pole and s_2 is the speed at which the train crosses platform.)

$s_1 = \frac{l}{20}$, $s_2 = \frac{l+250}{45}$, $s_1 = s_2$

$\Rightarrow \frac{l}{20}, = \frac{l+250}{45} = 45l = 20l + 5000 \Rightarrow 25l = 5000$

$\therefore l = 200$ m