# SSC CHSL GRAND TEST : 171203 - HINTS AND SOLUTIONS

ANSWER KEY

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

1. (2) Except Foible, all others are type of strange behaviour.
2. (2) Except 17, all others are composite numbers.
3. (4) Except Fathom, we know the shape of others.

4. (1)
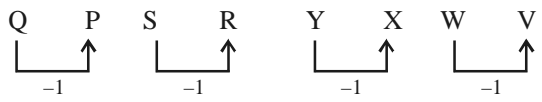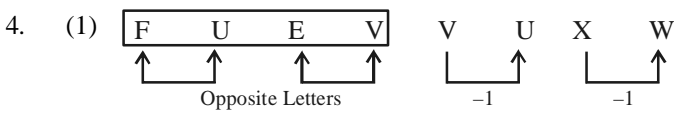
5. (3)
6. (2) As,Tears imerge from Eyes, similarly Lava imerges from Volcano.

7. (4) As,

Similarly,
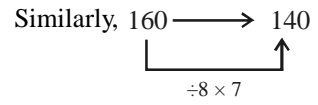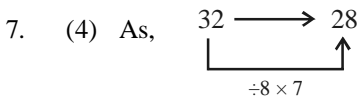
8. (2) As, perch is found in fresh water, in the same way Cod is found in Salt ater.

9. (4) As,
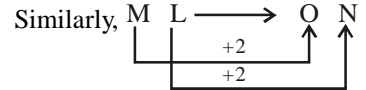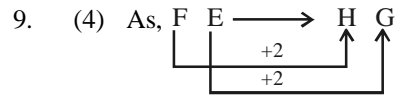
Similarly,

10. (4) According to the dictionary reverse order og words as given below.
   1. Multitude
   3. Multiplier
   4. Multinomial
   2. Multinational
   5. Multilingual
   $\Rightarrow$ 1, 3, 4, 2, 5

11. (1) Answer figure (a) will complete the pattern of the question figure.

12. (4) As, $(4+2+7)-(3+1)=13-4=9$
   and $(3+3+5)-(4+2)=11-6=5$
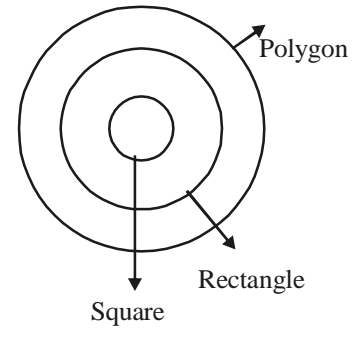   Similarly, $(6+9+2)-(4+3)=17-7=10$

13. (3) As, $5\times(7-5)=5\times2=10$;
   $6\times(9-6)=6\times3=18$;
   and $7\times(10-7)=7\times3=21$
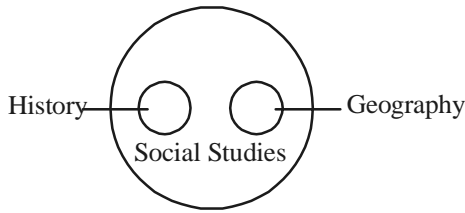   Similarly, $8\times(?-8)=40\Rightarrow(?-8)=5$
   $?=8+5=13$

14. (3) According to the condition,
   It is clear that the relation between Naksha and Nisha is of Niece and Aunt.

15. (1) From the otion (a),
   $\underline{b}$ a b a/b b/b a $\underline{b}$ a/ $\underline{b}$ $\underline{b}$
 $\Rightarrow$ b a b b b

16. (3)
17. (2) According to the statements

18. (4)
19. (3) History and Geography are the sub-parts of Social Studies.

History ——— Geography
Social Studies

20. (4) $5 + 2 - 12 \times 6 \div 2 = 10$
    Explanation : If '–' stands for '+', '+' stands for '×', '÷' stands for '–', '×' stands for '÷'.
    Put the value signs in the option (1),
    Then $5 - 2 \times 12 \div 6 + 2 = 4$
    $\Rightarrow 5 - 4 + 2 = 4$
    $\Rightarrow 1 + 2 = 4$
    $\Rightarrow 3 \ne 4$
    3 does not equal to 4.
    Put the value signs in the option (2),
    Then $5 \times 2 + 12 - 6 \div 2 = 13$
    $\Rightarrow 10 + 12 - 3 = 13$
    $\Rightarrow 22 - 3 = 13$
    $\Rightarrow 19 \ne 13$
    19 does not equal to 13.
    Put the value signs in the option (3),
    Then $5 + 2 \times 12 \div 6 - 2 = 27$
    $\Rightarrow 5 + 2 \times 2 - 2 = 27$
    $\Rightarrow 9 - 2 = 27$
    $\Rightarrow 7 \ne 27$
    7 does not equal to 27.
    Put the value signs in the option (4),
    Then $5 \times 2 + 12 \div 6 - 2 = 10$
    $\Rightarrow 10 + 2 - 2 = 10$
    $\Rightarrow 12 - 2 = 10$
    $\Rightarrow 10 = 10$
   Then this is correct.

21. (4) The meaning ful order of the given words is
    3. Silicate $\to$ 2. Silicon $\to$. Silken $\to$ 1. Silt

22. (1) According to the question,

    | | F | |
    |C|A|B|
    | |D| |
    | |E| |
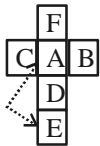
    it is clear that E is opposite to A.

23. (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
    $= 80 - 80 \times \frac{1}{8} = 80 - 10 = 70$ Rs.

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

    A ——10 km—— D
    20 km   20 km
    B ——25 km—— C

    N
    W — E
    S
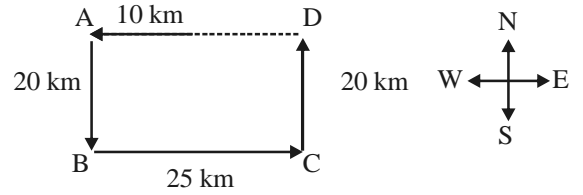
   The required distance(OD) = BC-OA = 25-10=15 Km

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

51. (1) Average production in all years
    $= \frac{71.3+43.5+67.66+76.23+77.23+88.93+91.75+100.17}{8}$
    $= \frac{616.78}{8} = 77.09$
    = 77 million tonne
    So, the required years = 1920,1921,1922,1923 =4

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

53. (4) Difference of production of steel in years 1923 and 1924
    $= 77.23 - 76.23 = 1 million tone$
    1 MT $= 100.17 \times \frac{x}{100} \Rightarrow x = \frac{100}{100.17} = 0.1\%$

54. (4) Productioin of steel in the year 1924 and 1927
    $= 76.23 + 100.17 = 176.4$
    The required ratio $= \frac{166.16}{176.4} = \frac{166.16 \times 12.5}{176.4 \times 12.5} = \frac{2077}{2205}$

55. (2)

    O ———— B
    |
    6 cm
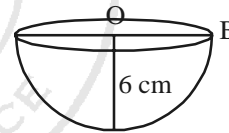
    Capacity = Volume
    $= \frac{1}{2} \times \frac{4}{3} \pi r^3 = \frac{2}{3} \times \frac{22}{7} \times 6 \times 6 \times 6$
    $= 452.57\ cm^3$

56. (3) Let the core of cube = x unit
    Volume $= x^3 cu$ unit
    As per question,
    Reducing 25% of side
    $$x - x \times \frac{25}{100} = \frac{75 x}{100} = \frac{3}{4} x$$
    New volume $= (side)^3 = \left(\frac{3}{4} x\right)^3 = \frac{27}{64} x^3$
    $\therefore$ Required ratio $= \dfrac{X^3}{\dfrac{27 X^3}{64}} = \frac{64 X^3}{27 X^3} = \frac{64}{27} = 64 : 27$

57. (2) P.W. = (Amount) – (T.D.) = Rs (1860 – 60) = Rs 1800
    T.D. is S.I. on P.W.
    Rs. 60 is S.I. on Rs 1800 at 5% p.a.

Time $= \dfrac{100 \times 60}{5 \times 1800} = \dfrac{2}{3}$ years

$= \dfrac{2}{3} \times 12$ months $= 8$ months

58. (2) $\left(\dfrac{\sin 47°}{\cos 43°}\right)^2 + \left(\dfrac{\cos 43°}{\sin 47°}\right)^2 - 4\cos^2 45°$

$= \left(\dfrac{\cos 43°}{\cos 43°}\right)^2 + \left(\dfrac{\sin 47°}{\sin 47°}\right)^2 - 4\left(\dfrac{1}{\sqrt{2}}\right)^2 = 1 + 1 - \dfrac{4}{2}$

$= 1 + 1 - 2 = 0$

59. (4) According to the question,
The greatest number of given four digits = 3995
The smallest number of given four digits = 3005
So, the required difference = 3995 - 3005 = 990

60. (1) Speed = 2.5 Km/h = v_1

Time $= \left(t + \dfrac{6}{60}\right)$ h, Speed $(v_2) = 3$ km/h

Time $= \left(t - \dfrac{10}{60}\right) h$

$d = \left(t + \dfrac{6}{60}\right) 2.5$

$d = \left(t - \dfrac{10}{60}\right) 3$

$\left(t + \dfrac{1}{10}\right) \times 2.5 = \left(t - \dfrac{1}{6}\right) \times 3$

$2.5t + \dfrac{2.5}{10} = 3t - \dfrac{3}{6} \Rightarrow 3t - 2.5t = 0.25 + 0.5$

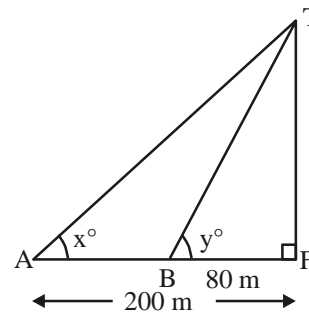$0.5t = 0.75 \Rightarrow \dfrac{1}{2}t = \dfrac{3}{4} \Rightarrow t = \dfrac{3}{2} = 1\dfrac{1}{2} h$

$\therefore$ Distance (d) $= \left(1\dfrac{1}{2} + \dfrac{1}{10}\right) \times 2.5$ [from Eq.(i)]

$= \left(\dfrac{3}{2} + \dfrac{1}{10}\right) \times 2.5 = \left(\dfrac{15+1}{10}\right) \times 2.5$

$= \dfrac{16}{10} \times 2.5 = 4$ Km

61. (4) $9x^2 + 25 - 30x$

$= (3X)^2 - 2 \times (3) \times (5) X + (5)^2$

$= (3X - 5)^2$

$\therefore$ The required value is 3X-5.

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

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

TF = 80 m

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

$\therefore \angle y° = \angle BTF$

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

63. (1) Given, HCF = 9
Sum of positive numbers x and y = 99
If x = 9, then y = 90; pair = (9, 90)
If x = 18, then y = 81; pair = (18, 81)
If x = 27, then y = 72; pair = (27, 72)
If x = 36, then y = 63; pair = (36, 63)
If x = 45, then y = 54; pair = (45, 54)
Therefore, the required pairs = 5

64. (1) $\sin\theta + \cos\theta = \sqrt{2}\sin(90 - \theta)$

$\cot\theta = ?$

$\sin\theta + \cos\theta = \sqrt{2}\cos\theta$

$\Rightarrow \dfrac{\sin\theta + \cos\theta}{\cos\theta} = \sqrt{2}$

$\Rightarrow \tan\theta + 1 = \sqrt{2} \Rightarrow \tan\theta = \sqrt{2} - 1$

$\therefore \cot\theta = \dfrac{1}{\sqrt{2}-1} = \dfrac{\sqrt{2}+1}{\sqrt{2}-1 \times \sqrt{2}+1} = \dfrac{\sqrt{2}+1}{(\sqrt{2})^2 - (1)^2}$
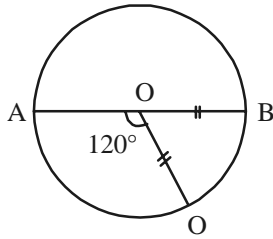
$= \dfrac{\sqrt{2}+1}{2-1} = \sqrt{2}+1$

65. (2) x + y = 2a (Given)

$\dfrac{a}{x-a} + \dfrac{a}{y-a} = ?$

$\Rightarrow \dfrac{a(y-a) + a(x-a)}{(x-a)(y-a)} \Rightarrow a\left[\dfrac{y-a+x-a}{x^2-a^2}\right]$

$\Rightarrow a\left[\dfrac{x+y-2a}{x^2-a^2}\right] \Rightarrow a\left[\dfrac{2a-2a}{x^2-a^2}\right] = a \times 0 = 0$

66. (3)

In the above circle,

Since OP = OB = radius

$\therefore \angle B = \angle P$ and $\angle POB = 180° - 120° = 60°$

In ΔPBO,

$\angle B + \angle P + \angle O = 180°$

$\Rightarrow \angle B + \angle P + 60° = 180°$

$\Rightarrow \angle B + \angle P = 180° - 60° = 120°$

$\therefore \angle B = \dfrac{120°}{2} = 60°$

67. (2) It lies outside the triangle.

68. (3) The average sale of 6 days = Rs. 15640

Total sale of 6 days = 6 × 15640 = 93840

The average sale of 5 days (Tuesday to Saturday)

= Rs. 14124

Total sale of 5 days = 5 × 14124 = 70620

So, the sale of sunday = 93840 – 70620 = Rs.23220

69. (3) $\dfrac{(\tan 20°)^2}{(\cosec 70°)^2} + \dfrac{(\cot 20°)^2}{(\sec 70°)^2} + 2\tan 15°.\tan 45°.\tan 75°$

$= \left(\dfrac{\frac{\sin 20°}{\cos 20°}}{\frac{1}{\sin 70°}} \right) + \left(\dfrac{\frac{\cos 20°}{\sin 20°}}{\frac{1}{\cos 70°}} \right) + 2\tan 15°.\tan 45°.\tan 75°$

$= \left(\dfrac{\sin 20° \cos 20°}{\cos 20°} \right)^2 + \left(\dfrac{\cos 20°.\cos 70°}{\cos 70°} \right) + 2 \times 1 \times 1$

$= (\sin 20°)^2 + (\cos 20°)^2 + 2 = 1 + 2 = 3$

70. (4) $\dfrac{x}{3} + \dfrac{3}{x} = 1$ Let $\dfrac{x}{3} = y$

$y + \dfrac{1}{y} = 1 \Rightarrow y^2 + 1 = y \Rightarrow y^2 - y + 1 = 0$

Since $(y^3 + 1) = (y + 1)(y^2 - y + 1)$

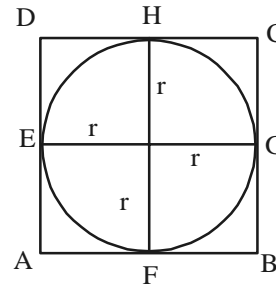$\therefore y^3 + 1 = (y + 1) \times 0 = 0$

$\left(\dfrac{x}{3} \right)^3 + 1 = 0 \Rightarrow \dfrac{x^3}{27} + 1 = 0 \Rightarrow \dfrac{x^3}{27} = -1$

$\therefore x^3 = -27$

71. (3) LCM of 12, 18, 21, 28 = 252

So, the greatest number of four digits = 252 × 39 = 9828

72. (1)

Let the radius of circle = r

AB = CD = CB = DA = 2r

$\therefore \dfrac{AB + CD}{CB + DA} = \dfrac{2r + 2r}{2r + 2r} = \dfrac{4r}{4r} = 1$

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

$\sqrt{\dfrac{3}{11}} = \sqrt{\dfrac{3 \times 11}{11 \times 11}} = \sqrt{\dfrac{33}{121}} = \dfrac{\sqrt{33}}{11} = \dfrac{5.745}{11} = 0.5223$

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.)

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

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

$\therefore l = 200$ m