SSC CHSL GRAND TEST : 171205 - HINTS AND SOLUTIONS

ANSWER KEY

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

1. (3) The meaningful order of the given words are given below.
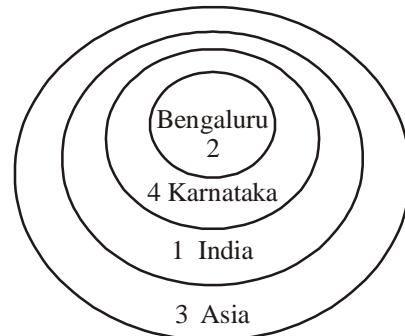
$\Rightarrow$ Asis $\rightarrow$ India $\rightarrow$ Karnataka $\rightarrow$ Bengaluru $\Rightarrow$ 3, 1, 4, 2

2. (3) As,
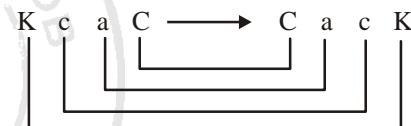
Similarly,
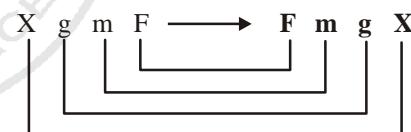
3. (4) As, feminine is the gender of female. Similarly, masculine is the gender of male.

4. (1) As, $\dfrac{42}{2} - 1 = 21 - 1 = 20$

Similarly, $\dfrac{64}{2} - 1 = 32 - 1 = \boxed{31}$

5. (1) As, S U M O $\longrightarrow$ P R J L
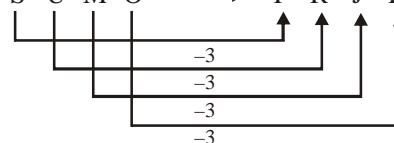
Similarly, T A X I $\longrightarrow$ **Q X U F**

6. (2)
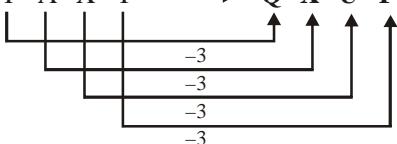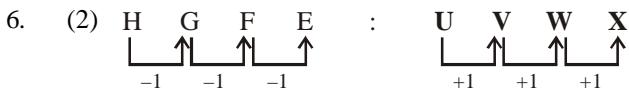
It is clear that all are different, except 'UVWX'.

7. (2) Except 36, there is no perfect square of any number.
8. (1) $(82, 29) \Rightarrow 8 + 2 \neq 2 + 9 \Rightarrow 10 \neq 11$
 $(45, 18) \Rightarrow 4 + 5 = 1 + 8 \Rightarrow 9 = 9$
        $(36, 27) \Rightarrow 3 + 6 = 2 + 7 \Rightarrow 9 = 9$
        $(23, 14) \Rightarrow 2 + 3 = 1 + 4 \Rightarrow 5 = 5$
        Clearly (82, 29) is different from another.
9. (2) Except 'Fast' all words have silent letters.
10. (2)
        $6 + \sqrt{216} = 6 + 6 = 12$
        $7 + \sqrt{343} = 7 + 7 = 14$
        $8 + \sqrt{512} = 8 + 8 = 16$
        $9 + \sqrt{729} = 9 + 9 = 18$
        $\boxed{10 + \sqrt{1000}} = 10 + 10 = 20$
        (each +2)

11. (3)

12. (4)
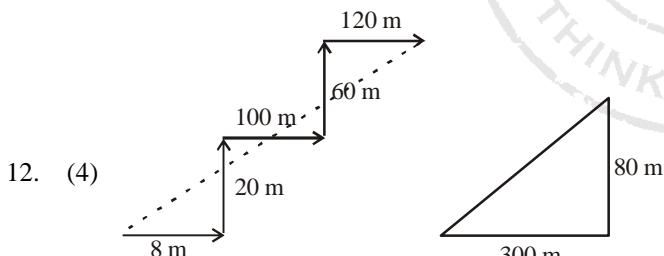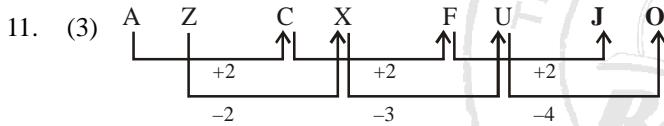
$\Rightarrow \sqrt{(300)^2 + (80)^2} = 310.48$

13. (4) As, $F \to 21 \Rightarrow 2 + 1 = 3$
        $A \to 26 \Rightarrow 2 + 6 = 8$
        $D \to 23 \Rightarrow 2 + 3 = 5$
        $E \to 22 \Rightarrow 2 + 2 = 4$
        $\Rightarrow 3854$
        Similarly,
        $G \to 20 \Rightarrow 2 + 0 = 2$
        $A \to 26 \Rightarrow 2 + 6 = 8$
        $G \to 20 \Rightarrow 2 + 0 = 2$
        $E \to 22 \Rightarrow 2 + 2 = 4$
        $\Rightarrow 2824$

14. (2) From the given series,
        a = 9 and d = 5 – 9 = –4
        Then, 20th number of the series.
        $\Rightarrow 9 + (20 - 1) \times (-4) = 9 - 76 = -67$
15. (4) 16 Q 12 P 6 R 5 S 4 = ?
        $? = 16 \times 12 \div 6 + 5 - 4$
        $= 16 \times 2 + 5 - 4 = 32 + 1 = \mathbf{33}$
16. (4) As, in (72, 66, 96), each number is divisible by 11.
17. (3) According to the dictionary, the order of the words is
        3. Nautical
        4. Naval
        2. Navigate
        1. Necessary
        $\Rightarrow$ 3, 4, 2, 1
18. (1) According to the dictionary, the order of the words is
   2. Rain
        1. Range
        4. Ranger
        3. Rein
        $\Rightarrow$ 2, 1, 4, 3
19. (1) 46 – 22 = 24
20. (4) According to the statements,
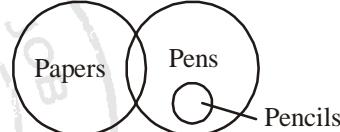
        Conclusions: I. (✓)   II. (✓)
   It is clear that, both conclusion I and II follow.
21. (2) From the option (2),
        Putting, ? = 4
        135 + 246 + 319 + 174 = 874
22. (3) Answer figure (3) will complete the pattern in the question figure.
23. (1)
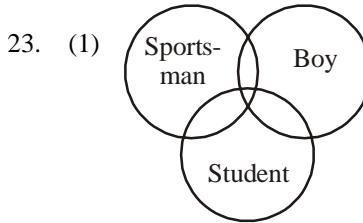
        It is clear that figure (1) will best represent the 'relationship'.
24. (3)
25. (4)
51. (1) Given that, $\dfrac{a}{b} + \dfrac{b}{a} = 2$
        $a^2 + b^2 = 2ab, \ a^2 + b^2 - 2ab = 0$
        $(a - b)^2 = a^2 + b^2 - 2ab, \ a - b = \sqrt{a^2 + b^2 - 2ab}$
        $a - b = \sqrt{0}, \ a - b = 0$

52. (3) Equivalent to a single discount of successive discount

$$= \left(A + B - \frac{A \times B}{100}\right) = \left(20 + 10 - \frac{20 \times 10}{100}\right) = (30 - 2) = 28\%$$

53. (2) Average expenses of first 5 months = Rs. 1200
Average expenses of next 7 months = Rs. 1300
Saving of twelve months = Rs. 2900
So, the total expenses of first 5 months = Rs. 6000
and total expenses of next 7 months = Rs. 9100
Sum of twelve months = Rs. 15100
Saving of twelve months = Rs. 2900
Therefore, thte total income of twelve months
= 15100 + 2900 = Rs. 18000
Hence, the monthly income of a man

$$= \frac{18000}{12} = Rs.1500$$

54. (1) Each interior angle of regular polygon

$$= \left(\frac{n-2}{n}\right) \times 180 = \left(\frac{6-2}{6}\right) \times 180 = \frac{4}{6} \times 180 = 120°$$

55. (1) Let $0.3\overline{939} = \frac{p}{q} = \frac{3939 - 39}{9900} = \frac{3900}{9900} = \frac{39}{99} = \frac{13}{33}$

56. (1) Let CP = C and the quantity of sugar on profit on 8% = x kg
According to the question,
108% of x × C + 118% of (1000 – x) × C = 114% of 1000 × C

$\Rightarrow 108 \times C + 118000C - 118 \times C = 114000C$

$\Rightarrow 118000C - 1000 \times 114C = 118 \times C - 108 \times C$

$\Rightarrow 4000C = 10 \times C \Rightarrow x = \frac{4000}{10} = 400$

Hence, required quantity = 400 kg

57. (1) LCM of 8, 12, 16 = 48
Hence, the required number
= 48 × n + 3, divisible by 7
= 48 × 3 + 3 = 147, divisible by 7 [Let n = 3]

58. (3)
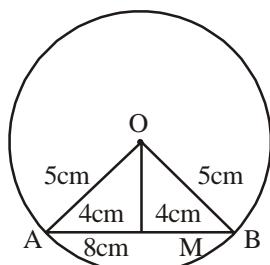
AB = 8 cm, AM = $\frac{8}{2}$ = 4 cm

In right triangle OMA,
$(OM)^2 = (OA)^2 - (AM)^2 = (5)^2 - (4)^2 = 25 - 16 = 9$
OM = 3 cm

59. (2) Selling price of watch = Rs. 720
Loss = 25%
Let the cost price of watch = Rs. x
(100 – 25)% of x = 720

125% of x = $\frac{125 \times 720}{75}$ = Rs. 1200

60. (2) Ratio of efficiency of A and B = 3 : 1
Ratio of time of A and B = 1 : 3

Work done by A and B in one day = $\frac{1}{x} + \frac{1}{3x} = \frac{4}{3x}$ part

Workd one by A and B in 9 day = $\frac{9 \times 4}{3x} = \frac{12}{x}$ part

As per condition, $\frac{2}{5} = \frac{12}{x} \Rightarrow x = 30$

Hence, B will do that work in 30 × 3 = 90 days.

61. (4) Every real number is ration and irrational number.

62. (3) $\sqrt{y} = 4x$

$(\sqrt{y})^2 = (4x)^2$ (squaring both sides)

$y = 16x^2, \frac{x^2}{y} = \frac{1}{16}$

63. (4) $\frac{9}{\csc^2 \theta} + 4\cos^2 \theta + \frac{5}{1 + \tan^2 \theta}$

$= \frac{9\sin^2 \theta}{1} + 4\cos^2 \theta + \frac{5}{1 + \frac{\sin^2 \theta}{\cos^2 \theta}}$

$= 9\sin^2 \theta + 4\cos^2 \theta + \frac{5\cos^2 \theta}{\sin^2 \theta + \cos^2 \theta}$

$= 9\sin^2 \theta + 4\cos^2 \theta + 5\cos^2 \theta = 9\sin^2 \theta + 9\cos^2 \theta$

$= 9(\sin^2 \theta + \cos^2 \theta) = 9(1) = 9$

64. (3) Let the principle amount be 10x and interest = 3x

Simple interest = $\frac{PTR}{100} \Rightarrow 3x = \frac{100x \times 5 \times R}{100}$

$\Rightarrow \frac{300}{50} = R$

65. (4) $\frac{x}{y} = \frac{a+2}{a-2}, \frac{x^2 - y^2}{x^2 + y^2} = ?$

Let $\frac{x}{y} = \frac{a+2}{a-2} = k$

$\therefore x = (a+2)k$ and $y = (a-2)k$

$$\frac{x^2 - y^2}{x^2 + y^2}$$

$$= \frac{k^2}{k^2}\left[\frac{(a+2)^2 - (a-2)^2}{(a+2)^2 + (a-2)^2}\right] = \frac{a^2 + 4 + 4a - a^2 + 4a - 4}{a^2 + 4 + 4a + a^2 + 4 - 4a}$$

$$= \frac{8a}{2a^2 + 8} = \frac{2 \times 4a}{2(a^2 + 4)} = \frac{4a}{a^2 + 4}$$

So, the required answer $= \dfrac{4a}{a^2 + 4}$

66. (1) $\tan\theta + \sec\theta = 3 \Rightarrow \sec\theta + \tan\theta = 3$

$$\frac{1}{\cos\theta} + \frac{\sin\theta}{\cos\theta} = 3 \Rightarrow \frac{1+\sin\theta}{\cos\theta} = 3$$

$1 + \sin\theta = 3\cos\theta, (1+\sin\theta)^2 = (3\cos\theta)^2$

$1 + \sin^2\theta + 2\sin\theta = 9\cos^2\theta$

$1 + \sin^2\theta + 2\sin\theta = 9(1 - \sin^2\theta)$

$\sin^2\theta + 9\sin^2\theta + 2\sin\theta = 9 - 1,$

$\Rightarrow 10\sin^2\theta + 2\sin\theta = 8$

$\Rightarrow 10\sin^2\theta + 2\sin\theta - 8 = 0$

$\Rightarrow 10\sin^2\theta + 10\sin\theta - 8\sin\theta - 8 = 0$

$\Rightarrow 10\sin\theta(\sin\theta + 1) - 8(\sin\theta + 1) = 0$

$\Rightarrow (\sin\theta + 1)(10\sin\theta - 8) \Rightarrow 10\sin\theta = 8, \sin\theta = \dfrac{8}{10}$

$\therefore 5\sin\theta = \dfrac{5 \times 8}{10} = 4$

67. (1) $\dfrac{(10)^{100}}{(5)^{75}} = \dfrac{(2 \times 5)^{100}}{5^{75}} = \dfrac{2^{100} \times 5^{100}}{5^{75}}$

$= 2^{100} \times 5^{100-75} = 2^{100} \times 5^{25}$

$= 2^{75} \times 2^{25} \times 5^{25} = 2^{75} \times (10)^{25}$

68. (4)
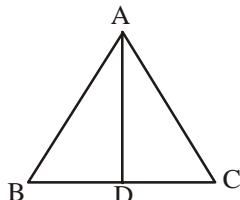
We know that, if $AD \perp BC$, then

$AD^2 = BD \times DC, \angle A = 90°$

69. (1) $x = a(b-c), y = b(c-a), z = c(a-b)$

$\dfrac{x}{a} = b - c; \dfrac{y}{b} = c - a; \dfrac{z}{c} = a - b$

$\dfrac{x}{a} + \dfrac{y}{b} + \dfrac{z}{c} = b - c + c - a + a - b; \dfrac{x}{a} + \dfrac{y}{b} + \dfrac{z}{c} = 0$

$\therefore \left(\dfrac{x}{a}\right)^3 + \left(\dfrac{y}{b}\right)^3 + \left(\dfrac{z}{c}\right)^3 = 3 \times \dfrac{x}{a} \times \dfrac{y}{b} \times \dfrac{z}{c} = \dfrac{3xyz}{abc}$

70. (4) If $x = y = z$, then $\dfrac{x+y+z}{x^2 + x^2 + x^2} = \dfrac{(3x)^2}{3x^2} = \dfrac{9x^2}{3x^2} = 3$

71. (1) Production of Company D = 2700
Production of Company A = 1500
So, the required value $= 1500 \times h = 2700$

$\therefore h = \dfrac{2700}{1500} = 1.8$ times

72. (3) Production of Company A = 1500
Demand of Company A = 3000
Surplus production = 3000 – 1500 = 1500
In this case the most suitable company is D because its difference of production and demand = 1500

73. (4) The required ratio = 3 : 2

74. (3) The average demand of all companies

$$= \frac{3000 + 600 + 2500 + 1200 + 3300}{5} = \frac{10600}{5} = 2120$$

The average demand of all companies

$$= \frac{1500 + 1800 + 1000 + 2700 + 2000}{5} = \frac{9200}{5} = 1840$$

So, the required difference = 2120 – 1840 = 280

75. (2) x% of C's demand = Demand of B

$$2500 \times \frac{x}{100} = 600 \Rightarrow x = \frac{600 \times 100}{2500} = 24$$

Hence, x = 24