SSC CHSL GRAND TEST : 180109 - HINTS AND SOLUTIONS

ANSWER KEY

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

1 (3) The word formed by the letter given in the boxes is sandwich.

2 (1)

3 (2) From the two views of the dice, it is clear that 2 lies opposite 4.

4 (2) Align 3 + 18 = 21
4 + 23 = 27
? + 27 = 33
? = 33 – 27 = 6

5 (1) First Column, $\sqrt{64}+\sqrt{36}=8+6=14$

Second Column, $\sqrt{25}+\sqrt{49}=5+7=12$

Third column, $\sqrt{81}+\sqrt{16}=9+4=13$

6 (3) 27 × 3 = 81
24 × 3 = 72

7 (1) 4 + 7 = 6 + 5 = 11
5 + 9 = 9 + 5 = 14 so, ans is 95.

8 (3) Love is opposite of hate , so proud is opposite of humble.

9 (2) 7 + 5 = 12; 12 + 10 = 22; 22 + 15 = 37
Similarly,
3 + 5 = 8; 8 + 10 = 18; 18 + 15 = 33

10 (1) $20\times\frac{6}{4}+5-7=28$

11 (4) The given number series is based ont he following pattern:

$$1\xrightarrow{*1+1}2\xrightarrow{*2+2}6\xrightarrow{*3+3}21$$

$$\xrightarrow{*4+4}88\xrightarrow{*5+5}445$$

12 (3) First Letters :

$$Q\xrightarrow{+2}S\xrightarrow{+2}U\xrightarrow{+2}W\xrightarrow{+2}Y$$

Second Letters :

$$1\xrightarrow{*1+1}2\xrightarrow{*2+2}6\xrightarrow{*3+3}21\xrightarrow{*4+4}\mathbf{88}$$

Third Letters :

$$F\xrightarrow{-1}E\xrightarrow{-1}D\xrightarrow{-1}C\xrightarrow{-1}\mathbf{B}$$

13 (4) MONP/MONP/MONP/MONP
Therefore? =MONP

14 (1) ab c /abc/ a bc/ a bc/a b c
Therefore? = caab

15 (1) There is only one 'E' in the given word.

16 (3) There is only no 'Y' letter in the given word.

17 (3) Clearly, both I and II follows. If situation calls for an immediate action, the matter seems to be serious.

18 (4) In figure (d) the triangle is inverted.

19 (1)

20 (1)

21 (2) $\frac{48}{6}=8;\ \frac{21}{7}=3;\ \frac{24}{3}=8\text{l};\ \frac{56}{7}=8$

22 (4) Graphite and Diamond are allotropes of carbon, a non – metal. Gold is metal.

23 (1) The number 49 is a perfect square.

24 (2) There is a vowel in the letter group XRMIF

25 (2) Mercury is found in liquid form at the normal temperature and pressure.

51 (4) Let x kg of good quality wheat is added in 150 kg of wheat.
95% of (150 + x) = 135 + x
150 × 95 + 95x = 35

$$\Rightarrow\frac{750}{5}=x\Rightarrow x=150\text{ kg}$$

52 (1) Original price of 250 chairs = 250 × 50 = Rs. 12500
Price after discount

$$= 12500 \times \frac{80}{100} \times \frac{85}{100} \times \frac{95}{100} = \text{Rs.}8075$$

53 (4) SP = Rs. 17940, Discount = 8%

$$\therefore \text{MP} = \frac{17940}{0.92} = \text{Rs.}19500$$

$\because$ Gain = 19.6% (Given)

$$\therefore \text{CP} = \frac{17940}{1.196} = \text{Rs.}15000$$

New SP without discount = Rs. 19500
Gain = 19500 – 15000 = Rs.4500

$$\therefore \text{Gain percent} = \frac{4500}{15000} \times 100 = 30\%$$

54 (1) Let no. of persons buying the tickets on the three days are 2x, 5x, 13x respectiely.
$\therefore$ No. of total tickets bought = 20x
From ques., total cost of tickets
= 15 × 2x + 7.5 × 5x + 2.5 × 13x
= (30 + 37.5 + 32.5) x
= (100.0)x = Rs. 100x

$$\therefore \text{average cost of ticket per person} = \frac{100x}{20x} = \text{Rs.}5$$

55 (4) Let weight of diamond = x
\ From ques.,
Initial cost of diamond = kx^2
where k = constant
Let the weights of 4 pieces be y, 2y, 3y, 4y respectively,
$\therefore$ x = y + 2y + 3y + 4y
x = 10y ...(1)
again, from ques.,
$ky^2 + k(2y)^2 + k(3y)^2 + k(4y)^2 = 140000$
$\Rightarrow 30\,ky^2 = 140000$

$$\Rightarrow 30k\frac{x^2}{100} = 140000$$

\

$$\Rightarrow kx^2 = \frac{140000 \times 100}{30} = \text{Rs.}4.7 \text{ lakh (approx.)}$$

56 (2) X's investment

$$= (700 \times 3) + \left(700 \times \frac{5}{7} \times 3\right) + \left(500 + 200 \times \frac{3}{5}\right) \times 6$$

= Rs. 7320
Y's investment = 600 × 12 = Rs. 7200
$\therefore$ X's share from profit

$$= \frac{7320}{(7320 + 7200)} \times 726 = \text{Rs.}366$$

57 (2) Given, P = Rs.3000, r = 10% p.a., n = 3 years
Let the total amount given by man = A
Now, by formula
Amount

$$= P\left(1 + \frac{r}{100}\right)^n - A\left[\left(1 + \frac{r}{100}\right)^{n-1} + \left(1 + \frac{r}{100}\right)^{n-2}\right]$$

$$= 3000\left(1 + \frac{10}{100}\right)^n - 1000\left[\left(1 + \frac{10}{100}\right)^2 + \left(1 + \frac{10}{100}\right)^1\right]$$

= 3993 – 1210 – 1100 = Rs. 1683

58 (2) Let the work be finished in x days.
Then,

$$1 = \frac{x}{8} + \frac{(x-1)}{16} + \frac{2}{24}$$

$$\Rightarrow \frac{11}{12} = \frac{2x + x + 1}{16}$$

$$\Rightarrow 3x - 1 = \frac{16 \times 11}{12} \Rightarrow x = \frac{47}{9} \text{ days}$$

59 (1) Together both pipe can fill the tank in $\left(\frac{20 \times 30}{20 + 30}\right) h = 12$ hr.
One third tank can be filled in 4 hr.
Now, there is a leak which can empty the tank in (12 × 4) h = 48 h.
So, two-third tank can be filled in

$$\frac{2}{3} \times \frac{12 \times 48}{40 - 12} \text{ hr} = 10\frac{2}{3} \text{ hr.}$$

So, total time to fill the mark = $4 + 10\frac{2}{3} = 14\frac{2}{3}$ hr.

60 (3) Let two train meet at a distance x from Delhi.
Then, $x = 60 \times t_1$ (Mumbai express)

$$\Rightarrow 60t_1 = 80t_1 - 160 \Rightarrow 20t_1 = 160$$

$t_1 = 8$ hr.
$\therefore$ Required distance $x = 60 \times t_1 = 60 \times 8 = 480$ km.

61 (4) Let the speed of current be x m/min.
Then, speed with current = (48 + x) m/min.
and Speed against the current = (48 – x) km/h.

$$\Rightarrow \frac{200}{(48 - x)} - \frac{200}{(48 + x)} = 10$$

$$\Rightarrow 40x = (48)^2 - x^2 \Rightarrow x^2 + 40x - 2304 = 0$$

$$\Rightarrow (x + 72)(x - 32) = 0$$

$$\Rightarrow x = 32 \text{ m/min.}$$

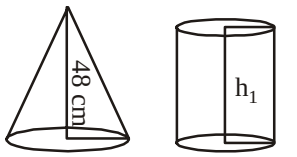
62 (3) $\left(2-\frac{1}{3}\right)\left(2-\frac{3}{5}\right)\left(2-\frac{5}{7}\right)....\left(2-\frac{997}{999}\right)$

$=\frac{5}{3}\times\frac{7}{5}\times\frac{9}{7}\times....\frac{1001}{999}=\frac{1001}{3}$

63 (2) In the denominator of question then the solution is

$\sqrt{\frac{100[(0.003)^2+(0.021)^2+(0.0065)^2]}{[(0.003)^2+(0.021)^2+(0.0065)^2]}}=10$

64 (4) r = 10 cm, h = 48 cm



Volume of the water in the conical vessel
= volume of the water in the cylindrical vessel

$\Rightarrow \frac{1}{3}pr^2h=\pi r_1^2h_1$

$\Rightarrow \frac{1}{3}\times(10)^2\times48=(20)^2\times h_1$

$\Rightarrow h_1=\frac{10\times10\times48}{20\times20\times3}=4$ cm

65 (1) $r=\frac{7}{2}$ cm , h = 12 cm

Volume of the water in pipe in 1 sec.

$=\pi r^2h=\frac{22}{7}\times\frac{7}{2}\times\frac{7}{2}\times12=66\times7$ cm^3

Volume of water stored in (3600 seconds) 1hr.
= 66 × 7 cm^3
Volume of water stored in (3600 seconds) 1 hr.
= 66 × 7 × 3600 cm^3 = 1663200 cm^3

$=\frac{1663200}{1000000}m^3=1.6632\ m^3=1663.2$ litre

66 (1) $x=(\sqrt{2}+1)^{1/3}\Rightarrow x^3=\sqrt{2}+1$

Now,

$\frac{1}{x^3}=\frac{1}{\sqrt{2}+1}=\frac{1}{\sqrt{2}+1}\times\frac{\sqrt{2}-1}{\sqrt{2}+1}=\frac{\sqrt{2}-1}{2-1}=\sqrt{2-1}$

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

$=\sqrt{2}+1-\sqrt{2}+1=2$

67 (3) Let p(x) = $(x+1)^7+(2x+k)^3$

Since (x + 2) is a factor of p(x).
$\Rightarrow$ p(–2) = 0 [by factor theorem]

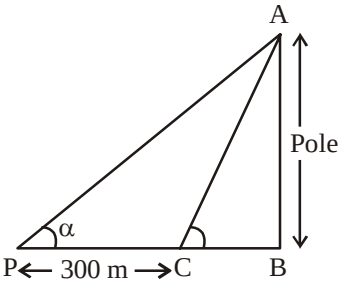
$\Rightarrow(-2+1)^7+(2\times-2+k)^3=0$

$\Rightarrow(-7)^7+(k-4)^3=0$

$\Rightarrow(k-4)^3=1\Rightarrow k-4=\sqrt[3]{1}=1$

$\therefore$ k = 5

68 (2)



Since $\tan\alpha=\frac{5}{12}$

$\Rightarrow\frac{AB}{BC+300}=\frac{5}{12}$ ...(1)

$\tan B=\frac{3}{4}$

$\Rightarrow\frac{AB}{BC}=\frac{3}{4}$ ...(2)

On dividing (1) and (2), we have

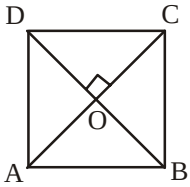
$\frac{BC}{BC+300}=\frac{5}{12}\times\frac{4}{3}=\frac{5}{9}$

$\Rightarrow 9BC=5BC+1500\Rightarrow BC=\frac{1500}{4}=375$ m

Height of pole = $AB=\frac{3}{4}\times BC=281.25$ m

69 (1) $(\sin A+\operatorname{cosec}A)^2+(\cos A+\sec A)^2$
$=\sec^2A+2\cos A.\sec A=7+\cot^2A+\tan^2A$

70 (2)



ABCD is a parallelogram whose diagonal BD = 18 cm.
Let both the diagonals bisect at O $\Rightarrow$ DO = OB = 9 cm.
Since DO and BO are medians of ΔADC and ΔABC.
Also P asd Q are centroids of ΔADC and ΔABC

$\Rightarrow PO = \frac{1}{3}\times 9$ and $QO = \frac{1}{3}\times 9$

[centroid of a Δ divides each median in the ratio of 2 : 1]

$PO = \frac{1}{3}\times 9 = 3$ cm and $QO = \frac{1}{3}\times 9 = 3$ cm

$\Rightarrow PQ = PO + QO = 3 + 3 = 6$ cm

71 (3) Let one of the two adjacent angles be of x°,

other adjacent angle = $\frac{2}{3}x°$

Now, $x° + \frac{2}{3}x° = 180°$

[Adjacent angles of a parallelogram are supplementary]

$X\left[1+\frac{2}{3}\right] = 180° \Rightarrow X = 180°\times\frac{3}{5}$

Smallest angle $= \frac{2}{3}x = \frac{2}{3}\times 180° = 72°$

72 (4) Let the side of the square be x cm
Length of the rectangle = (x + 5) cm
Its breadth = (x – 3) cm

$X^2 = (x+5)(x-3) \Rightarrow 2X = 15$

$\Rightarrow X = \frac{15}{2} = 7.5$ cm

Perimeter of the rectangle

$= 2(l + b) = 2[(7.5+5)+(7.5-3)]$

= 2 × 17 = 34 cm.

73 (2) Production of type D toys in 2003 = 105 thousand
Production of type D toys in 2005 = 125 thousand

% increase = $\frac{125-105}{105}\times 100 = \frac{20}{105}\times 100 = 19\%$ (app)

74 (1) Production of type A toys in 2002 = 200 thousand
Production of type A toys in 2004 = 180 thousand

% decrease = $\frac{200-180}{200}\times 100 = 10\%$

75 (3) Total production in 2005 = 675 thousand
Total production in 2006 = 750 thousand

% increas in production = $\frac{750-675}{675}\times 100 = 11\%$ (app)

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