

SSC CHSL - CHT1 : 180236 GRAND TEST

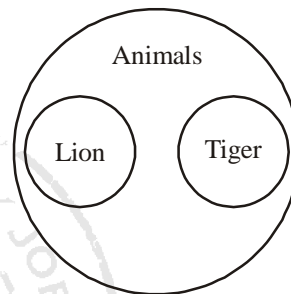
HINTS AND SOLUTIONS

ANSWER KEY

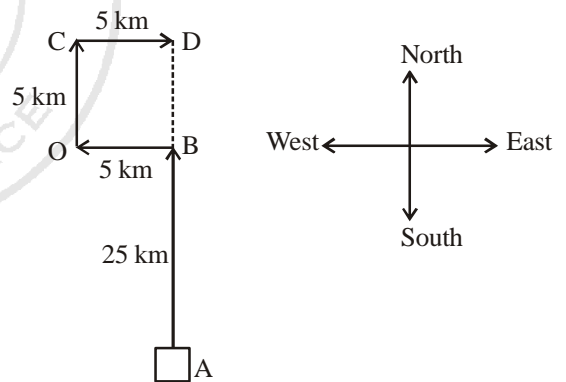
1	(3)	26	(4)	51	(1)	76	(1)
2	(4)	27	(1)	52	(2)	77	(2)
3	(1)	28	(2)	53	(4)	78	(3)
4	(2)	29	(2)	54	(3)	79	(4)
5	(2)	30	(2)	55	(2)	80	(4)
6	(4)	31	(2)	56	(1)	81	(3)
7	(4)	32	(3)	57	(4)	82	(4)
8	(2)	33	(4)	58	(3)	83	(2)
9	(3)	34	(1)	59	(3)	84	(1)
10	(1)	35	(1)	60	(2)	85	(1)
11	(3)	36	(1)	61	(3)	86	(2)
12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

1

8. (2) The terms of the given series are $(2^2 - 1), (4^2 - 1), \dots, (8^2 - 1), (10^2 - 1), (12^2 - 1)$.
So, missing term = $(6^2 - 1) = (36 - 1) = 35$.
9. (3) $5 + 5 = 2 + 8$
 $3 + 7 = 6 + 4$
 $6 + ? = 9 + 9$
 $\therefore ? = 18 - 6 = 12$
10. (1) First Row $4 \times 3 \times 2 + 8$
 $\Rightarrow 24 + 8 = 32$
Second Row $5 \times 3 \times 1 + 9$
 $\Rightarrow 15 + 9 = 24$
Third Row $7 \times 3 \times 3 + 7$
 $\Rightarrow 63 + 7 = 70$
Fourth Row $2 \times 9 \times 4 + 12$
 $\Rightarrow 72 + 12 = 84$.
11. (3) Tiger is different from lion. But both are animals.

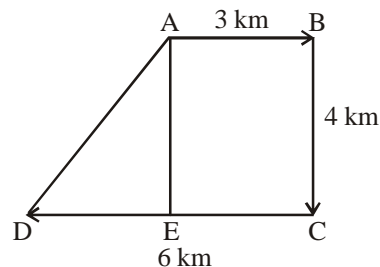


12. (3)



Required distance AD = $(25 + 5)$ km = 30 km.

13. (4)



$$AD = \sqrt{(AE)^2 + (DE)^2}$$

$$= \sqrt{(4)^2 + (3)^2} = \sqrt{16 + 9} = \sqrt{25} = 5 \text{ km.}$$

1. (3)
2. (4) To chat is to talk and to flutter is to flap.
3. (1) As, $121 = (5)^3 - 4$ and $61 = (4)^3 - 3$
Also, $337 = (7)^3 - 6$
 $\therefore ? = (6)^3 - 5 = 211$
4. (2) Entomology is that branch of science which deals with insects. Similarly, the scientific study of snakes is called ophiology.
5. (2) The number 841 is a perfect square.
 $841 = 29 \times 29$
6. (4) F I K D G I M P R K N Q
+3 +2 +3 +2 +3 +2 +3 +3
7. (4) All excepts sharp are related to dimension.

14. (3) Each row contains 12 plants
 There are 11 gaps between the two corner trees i.e. $(11 \times 2 = 22)$ meters and 1 metre is left on each side.
 \therefore Length of the garden = $22 + 2 = 24$ m.

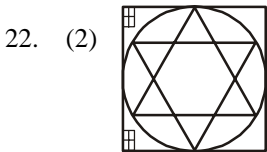
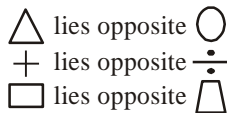
15. (3) The correct order is :
 Plant Cotton Yarn Cloth Saree
 $(2) \rightarrow (4) \rightarrow (1) \rightarrow (5) \rightarrow (3)$

16. (1) Such decisions as given in the statement are taken only after taking the existing vacancies into consideration. So, I implicit while II isn't.

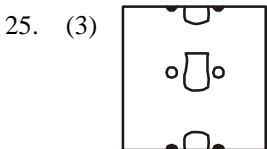
17. (2)
 18. (1) Two days before yesterday was Monday.
 Therefore, today is Monday + 4 = Friday
 Tomorrow will be Saturday
 Day after Tomorrow will be Sunday
 Now, three days after Sunday will be Thursday.

19. (2)
 20. (4) M is mother of T and wife of P. Therefore, P is son-in-law of K.

21. (3) When paper is folded in the form of a cube, then



23. (4)
 24. (2)



51. (1) Let total number of candidates be x.
 $\therefore 50x - 30 \times 100 = 45x$
 $\Rightarrow 5x = 3000$
 $\Rightarrow x = \frac{3000}{5} = 600$

52. (2) Let the speed of the cars be S_1 and S_2
 $= S_1 - S_2 = \frac{70}{7} = 10 \quad \dots(1)$

And $S_1 + S_2 = \frac{70}{1} = 70 \quad \dots(2)$

From eq. (1) and (2)
 $S_1 = 40$ km/hr, $S_2 = 30$ km/hr
 \Rightarrow Required speeds are 40 km/hr and 30 km/hr.

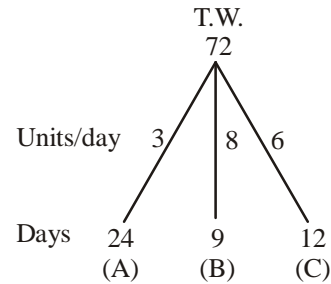
53. (4) If the weight of a piece of diamond be 6x units, then
 Original price $\propto (6x)^2 = 36kx^2$

$\therefore 36.kx^2 = 5184 \quad \dots(i)$

Again, New price = $k(x^2 + 4x^2 + 9x^2) = 14kx^2$
 $= \frac{14 \times 5184}{36} = \text{Rs.}2016$

\therefore Loss = $5184 - 2016 = \text{Rs.}3168$

54. (3)



B and C start the work, in 3 days they will do $(8 + 6)$ unit/day $\times 3$ days = 42 units
 Work left = $72 - 42 = 30$

A will do in = $\frac{30}{3} = 10$ days

55. (2) Let the present age of son is x years.
 Age of father = 42 years
 ATQ, $2x = 42$ years,
 $x = 21$ years

\therefore Age of son 5 years back was = $21 - 5 = 16$ years

56. (1) $\cos A = 1 - \cos^2 A = \sin^2 A$

$\therefore \sin^2 A + \sin^4 A = \sin^2 A + \cos^2 A = 1$

57. (4) Smallest number in case of decimal = 0.001.

58. (3)

59. (3) If the capital after tax deduction be x, then
 $x \times (4 - 3.75)\% = 48$

$\Rightarrow \frac{x \times 0.25}{100} = 48$

$\Rightarrow \frac{x \times 25}{10000} = 48 \Rightarrow \frac{x}{400} = 48$

$\Rightarrow x = 48 \times 400 = 19200$

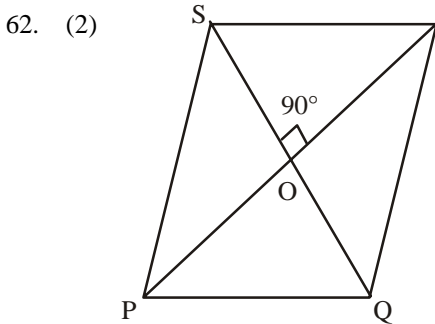
\therefore Required capital = $\frac{19200 \times 100}{96} = 20000$

60. (2) Unbroken tables = $\frac{5}{6} \times 108 = 90$

Unbroken chairs = $\frac{3}{4} \times 132 = 99$

Unbroken pairs = 90

61. (3) $A + B = 90^\circ \Rightarrow A = 90^\circ - B$
 $\Rightarrow \sin A = \sin(90^\circ - B) = \cos B$
 Similarly,
 $\Rightarrow \cos A = \sin B, \tan A = \cot B$
 $\therefore \sin A \cdot \cos B + \cos A \cdot \sin B$
 $\quad - \tan A \cdot \tan B + \sec^2 A - \cot^2 B$
 $= \cos^2 B + \sin^2 B - \cot B \cdot \tan B + \sec^2 A - \tan^2 A$
 $= 1 - 1 + 1 = 1$
 $[\because \tan B \cdot \cot B = 1, \sec^2 A - \tan^2 A = 1]$



$\angle PQO = \frac{1}{2} \angle PQR = 60^\circ$

From $\triangle POQ$, $\angle OPQ = 180^\circ - 90^\circ - 60^\circ = 30^\circ$

$\sin OPQ = \frac{OQ}{PQ}$

$\Rightarrow OQ = PQ \sin 30^\circ = 6 \times \frac{1}{2} = 3$

$\therefore QS = 2 \times 3 = 6 \text{ m.}$

63. (3) Decrease in area = $\frac{x^2}{100} \% = \frac{(10)^2}{100} = 1\%$

64. (2) $\tan \theta = \frac{\sin \alpha - \cos \alpha}{\sin \alpha + \cos \alpha}$

$\therefore 1 + \tan^2 \theta = 1 + \frac{(\sin \alpha - \cos \alpha)^2}{(\sin \alpha + \cos \alpha)^2}$

$\Rightarrow \sec^2 \theta = \frac{(\sin \alpha + \cos \alpha)^2 + (\sin \alpha - \cos \alpha)^2}{(\sin \alpha + \cos \alpha)^2}$

$\Rightarrow \sec^2 \theta = \frac{2(\sin^2 \alpha + \cos^2 \alpha)}{(\sin \alpha + \cos \alpha)^2}$

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

$\Rightarrow \frac{1}{\cos \theta} = \frac{\pm\sqrt{2}}{\sin \alpha + \cos \alpha}$

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

65. (1) $\tan \theta = \frac{3}{4} \Rightarrow \tan^2 \theta = \frac{9}{16}$

Expression

$= \frac{4 \sin^2 \theta - 2 \cos^2 \theta}{4 \sin^2 \theta + 3 \cos^2 \theta}$

$= \frac{4 \frac{\sin^2 \theta}{\cos^2 \theta} - 2 \frac{\cos^2 \theta}{\cos^2 \theta}}{4 \frac{\sin^2 \theta}{\cos^2 \theta} + 3 \frac{\cos^2 \theta}{\cos^2 \theta}}$

$= \frac{4 \tan^2 \theta - 2}{4 \tan^2 \theta + 3} = \frac{4 \times \frac{9}{16} - 2}{4 \times \frac{9}{16} + 3}$

$= \frac{\frac{9}{4} - 2}{\frac{9}{4} + 3} = \frac{9 - 8}{9 + 12} = \frac{1}{21}$

66. (4) The sum of any two sides of a triangle is greater than third side and their difference is less than third side.

$\therefore a + 4 > 10 \Rightarrow a > 10 - 4 \Rightarrow a > 6$

Again, $a - 4 < 10 \Rightarrow a < 14$

$\therefore 6 < a < 14$

67. (1) $\sqrt{6} \times \sqrt{15} = x\sqrt{10}$

$\Rightarrow \sqrt{2 \times 3} \times \sqrt{3 \times 5} = x\sqrt{10}$

$\Rightarrow \sqrt{2} \times \sqrt{5} \times 3 = x\sqrt{10}$

$\Rightarrow 3\sqrt{10} = x\sqrt{10}$

$\Rightarrow x = 3$

68. (4) According to question,

	Old	New
Price	5	$\xrightarrow{20\% \text{ increase}} 6$
Consumption	6	$\xrightarrow{\text{Decrease}} 5$
Expenditure	30	30

$\% \text{ decrease} = \frac{1}{6} \times 100 = 16\frac{2}{3} \%$

69. (1) Let the required increase = x cm

$\Rightarrow \pi(10+x)^2 \times 4 = \pi \times 10^2 \times (4+x)$

$\Rightarrow 100 + x^2 + 20x = 25(4+x)$

$\Rightarrow x^2 + 20x + 100 = 100 + 25x$

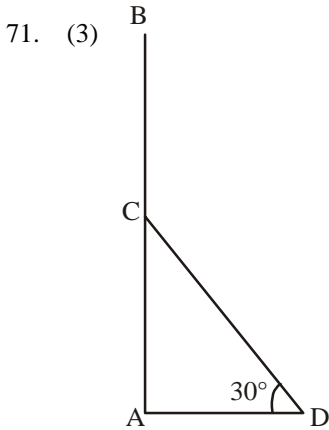
$\Rightarrow x^2 - 5x = 0 \Rightarrow x - 5 = 0 \Rightarrow x = 5$

70. (2) Interest = 5700 - 5000 = Rs.700

$$\therefore \text{Rate} = \frac{700 \times 100}{5000 \times 1} = 14\%$$

$$\begin{aligned} \text{Case II, Interest} &= \frac{\text{Principal} \times \text{Time} \times \text{Rate}}{100} \\ &= \frac{7000 \times 5 \times 14}{100} = \text{Rs.4900} \end{aligned}$$

Amount = 7000 + 4900 = Rs.11900



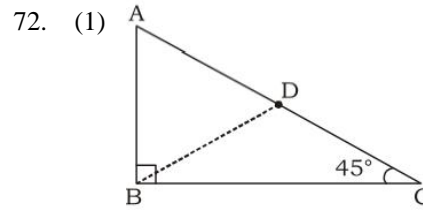
AB = tree
BC = broken part
 $\therefore BC = CD$
AD = 30 metre

$$\text{From } \triangle ACD, \tan 30^\circ = \frac{AC}{AD}$$

$$\Rightarrow AC = AD \times \frac{1}{\sqrt{3}} = \frac{30}{\sqrt{3}} = 10\sqrt{3} \text{ metre}$$

$$CD = AC \sin 30^\circ = 10\sqrt{3} \times \frac{1}{2} = 5\sqrt{3} = BC$$

$$\therefore AB = AC + BC = 10\sqrt{3} + 5\sqrt{3} = 15\sqrt{3} \text{ metre}$$



BD = AD = CD (mid-point of hypotenuse is circumcentre.)

$$\therefore BD = \frac{1}{2}(4\sqrt{2}) = 2\sqrt{2} \text{ units}$$

73. (4) It is clear from the graph.

Minimum sales in 1989 is 55 lakh bottles.

74. (1) Average annual sales during 1988-1993.

$$\text{Cool up} = \frac{25 + 6 + 19 + 15 + 25 + 30}{6} = \frac{120}{6}$$

$$\text{Pep up} = \frac{30 + 35 + 30 + 25 + 20 + 20}{6} = \frac{160}{6} = 26\frac{2}{3}$$

lakh bottles

75. (2) Sales of pep-up -

Year 1989 = 35 lakh bottles

Year 1990 = 30 lakh bottles

\therefore Required percent

$$= \frac{35 - 30}{35} \times 100 = \frac{100}{7} = 14.28 \approx 14$$

