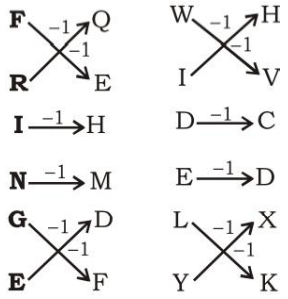
SSC CGL - 170726 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1. (4) To chat is to talk and to flutter is to flap.

2. (1)



3. (3) A professor works at a college, and a mechanic works at a garage.

4. (1) As, $121 = (5)^3 - 4$ and $61 = (4)^3 - 3$
Also, $337 = (7)^3 - 6$
$\therefore ? = (6)^3 - 5 = 211$

5. (3) A purse is used to hold money and an urn is used to hold ashes.

6. (4) All except chalk are obtained from crops.

7. (4) 4913 is a perfect cube whereas rest are perfect square.

8. (4) All excepts sharp are related to dimension.

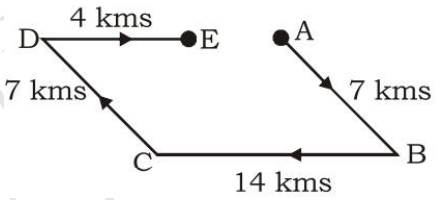
9. (4) All except Agra are cities situated on the banks of river Ganga.

10. (4)

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

12. (1) There were all sparrows but six' means that six birds were not sparrows but only pigeons and ducks.
Similarly, Number of sparrows + number of ducks = 6
Number of sparrows + Number of pigeons = 6.
This is possible only when there are 3 sparrows, 3 pigeons and 3 ducks i.e. 9 birds in all.

13. (3)



Required distance = AE = 14 – 4 = 10 kms

14. (3) The correct order is :
Plant Cotton Yarn Cloth Saree
(2) → (4) → (1) → (5) → (3)

15. (2) The terms of the given series are $(2^2 - 1)$, $(4^2 - 1)$,..., $(8^2 - 1)$, $(10^2 - 1)$, $(12^2 - 1)$.
So, missing term = $(6^2 - 1) = (36 - 1) = 35$.

16. (4) The pattern is +0, +3, +8, +15, ... i.e.
$(1^2 - 1)$, + $(2^2 - 1)$, + $(3^2 - 1)$, + $(4^2 - 1)$, ...
So, missing term = $28 + (5^2 - 1) = 28 + 24 = 52$.

17. (1) The colours adjacent to yellow are (orange, blue) and (red, pink). Hence violet will be opposite to yellow.

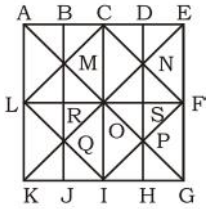
18. (1) Such decisions as given in the statement are taken only after taking the existing vacancies into consideration. So, I implicit while II isn't.

19. (4) 'Migen' means 'Cup'; 'Lasan' means 'Board'; 'Poen' means 'Walk'; 'Cuop' means 'Pull'; and 'Dansa' means 'Man'.
The only possible choices left are choices a and d. Choice a can be ruled out because migen means 'Cup'.
So, (4) is the right option.

20. (4)

21. (4) (15 × 6) + 2 =92
(7 × 6) + 2 = 44
(7 × 15) + 2 = 107.

22. (2) The figure may be labelled as shown.



The horizontal lines are AK, BJ, CI, DH and EG i.e. 5 in number.
The vertical lines are AE, LF and KG i.e. 3 in number.
The slanting lines are LC, CF, FI, LI, EK and AG i.e. 6 in number.
Thus, there are 5 + 3 + 6 = 14 straight lines in the figure.

23. (3) 24. (4)

25. (4) In question figure, one of the dots lies in the region common to the circle and the square only, another dot lies in the region common to the square, the triangle and the rectangle only and the third dot lies in the region common to the triangle and the rectangle only. In each of the figures (A), (B) and (C) there is no region common to the square, the triangle and the rectangle only. Only figure (D) consists of all the three types of regions.

51. (2) Let the speed and length of the train be s m/s and x m respectively.
ATQ,

$$s+3\times\frac{5}{18}=\frac{x}{36}$$

$$\Rightarrow s=\frac{x}{36}-\frac{15}{18} \quad ...(1)$$

and,

$$s+6\times\frac{5}{18}=\frac{x}{30}$$

$$\Rightarrow s=\frac{x}{30}-\frac{30}{18} \quad ...(2)$$

Equating (1) and (2), we get,

$$\frac{x}{36}-\frac{15}{18}=\frac{x}{30}-\frac{30}{18}$$

$$\Rightarrow \frac{x}{30}-\frac{x}{36}=\frac{30}{18}-\frac{15}{18}$$

$$\Rightarrow \frac{6x}{36\times30}=\frac{15}{18}$$

$\therefore$ x = 150 m

52. (1) Let total number of candidates be x.
$\therefore$ 50x – 30 × 100 = 45x
$\Rightarrow$ 5x = 3000

$$\Rightarrow x=\frac{3000}{5}=600$$

53. (2) $0.7+\sqrt{0.16}=1.1$

$$1.02-\frac{0.6}{24}=0.995$$

$$1.2\times0.83=0.996$$

$$\sqrt{1.44}=1.2$$

54. (3) If the capital after tax deduction be x, then
x × (4 – 3.75)% = 48

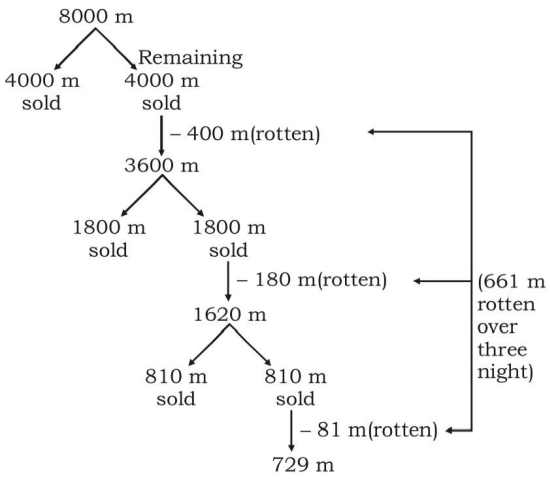
$$\Rightarrow \frac{x\times0.25}{100}=48$$

$$\Rightarrow \frac{x\times25}{10000}=48 \Rightarrow \frac{x}{400}=48$$

$$\Rightarrow x=48\times400=`19200$$

$$\therefore \text{Required capital}=\frac{19200\times100}{96}=`20000$$

55. (2) Let there were 8000 mangoes initially.
Then,



Hence 661 m = 1983 $\Rightarrow$ m = 3
Hence the total no. of mangoes = 3 × 8000 = 24000

56. (4) (25 × 10) M = (20 × 50) C
$\Rightarrow$ 1 M = 4 C
Work completed in 10 days by 5 men

$$=\frac{5}{10}=\frac{1}{2} \text{ part}$$

$$\text{Remaining work} = 1-\frac{1}{2}=\frac{1}{2} \text{ part.}$$

Let x children assist in remaining work
= (x + 5 × 4) children
= (20 + x) children
ATQ,

$$\frac{1}{2}(20+x)=20 \Rightarrow 10+\frac{x}{2}=20$$

$\Rightarrow$ x = 10 × 2 = 20 children

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

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

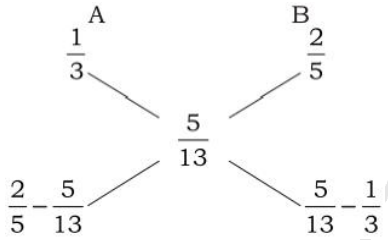
Unbroken pairs = 90

58. (1) In first alloy, zinc $= \frac{1}{3}$

In second alloy, zinc $= \frac{2}{5}$

In the new alloy, zinc $= \frac{5}{13}$

By the rule of Alligation,



∴ Required ratio

$= \left(\frac{2}{5} - \frac{5}{13}\right) : \left(\frac{5}{13} - \frac{1}{3}\right)$

$= \frac{26-25}{65} : \frac{15-13}{39} = \frac{1}{65} : \frac{2}{39} = \frac{1}{5} : \frac{2}{3} = 3 : 10$

59. (3) Let C.P = 1000

M.P = $1000 \times \frac{115}{100} = 1150$

Profit = 1150 – 920 = 230

∴ Profit % when traders uses a watt of 920 g instead of 1 kg = $\left(\frac{230}{920} \times 100\right)\% = 25\%$

60. (3) Average speed = $\frac{2 \times 6 \times 3}{(6+3)} = 4$ km / hr

61. (4) If average cost of 1 pen = ` x, then
30x + 75 × 2 = 510

$\Rightarrow$ 30x = 510 – 150 = 360 $\Rightarrow$ x = $\frac{360}{30} =$ `12

62. (2) Let the present age of son is x years.
Age of father = 42 years
ATQ, 2x = 42 years,
x = 21 years
∴ Age of son 5 years back was = 21 – 5 = 16 years

63. (3) Given CP of 40 books = ` 3200
According to the question,
SP of 40 books
= CP of 40 books + SP of 8 books
[∵ SP = CP + PROFIT]
SP of 32 books = ` 3200
[∵ CP of 40 books = 3200]
SP of 1 book = ` 100
SP of 1 dozen books = ` 1200

64. (3) Here, $\sqrt[3]{175616} = 56$

$\sqrt[3]{175.616} = 5.6$

$\sqrt[3]{0.175616} = 0.56$ and $\sqrt[3]{0.000175616} = 0.056$

∴ Required sum = 5.6 + 0.56 + 0.056 = 6.216

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

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

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

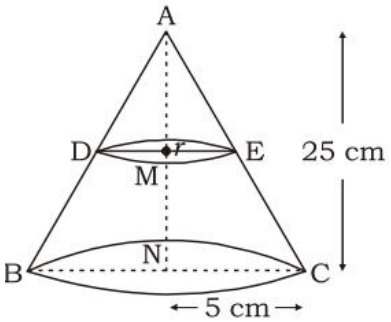
$\Rightarrow \sec^2\theta = \frac{2(\sin^2\alpha + \cos^2\alpha)}{(\sin\alpha + \cos\alpha)^2}$

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

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

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

66. (1)



ΔAME ~ ΔANC

$\therefore \frac{25-h}{25} = \frac{r}{5}$

$\Rightarrow$ h = 25 – 5r ...(1)

Volume of frustum (V)

$$= \frac{1}{3}\pi[5^2 + r^2 + 5r]h$$

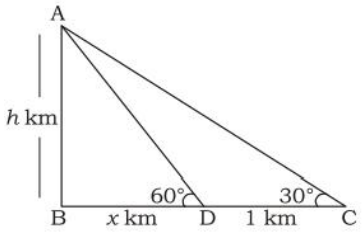
$$\Rightarrow 110 = \frac{1}{3}\pi[25 + r^2 + 5r](25 - 5r)$$

$$\Rightarrow \frac{5}{3}\pi[(5-r)(5^2 + r^2 + 5r)] = 110$$

$$\Rightarrow \frac{5}{3}\pi[5^3 - r^3] = 110 \Rightarrow 5^3 - r^3 = \frac{110 \times 3}{5\pi}$$

$$\Rightarrow 125 - r^3 = \frac{110 \times 3}{5 \times \frac{22}{7}} \Rightarrow r = (104)^{1/3} \text{ cm}$$

67. (1)



From ΔABD

$$\tan 60° = \frac{AB}{BD}$$

$$\Rightarrow \sqrt{3} = \frac{h}{x} \Rightarrow x = \frac{h}{\sqrt{3}} \text{ km} \quad ...(1)$$

From ΔABC

$$\tan 30° = \frac{AB}{BC}$$

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

$$\Rightarrow \frac{3h - h}{\sqrt{3}} = 1 \Rightarrow 2h = \sqrt{3}$$

$$h = \frac{\sqrt{3}}{2} \text{ km}$$

68. (4) Area of square = $(\text{side})^2$

$= (24)^2 = 576 \text{ cm}^2$

Area of rectangle = length × breadth

$= 576 - 176 = 400 \text{ cm}^2$

$\therefore$ Breadth of rectangle = $\frac{400}{24} = \frac{50}{3} = 16\frac{2}{3}$ cm

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

Expression

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

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

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

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

70. (2) $\sec\theta = \frac{4x^2 + 1}{4x}$

$$\tan\theta = \sqrt{\sec^2\theta - 1}$$

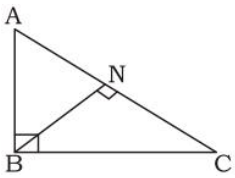
$$= \sqrt{\left(\frac{4x^2 + 1}{4x}\right)^2 - 1} = \sqrt{\frac{(4x^2+1)^2 - (4x)^2}{(4x)^2}}$$

$$= \frac{4x^2 - 1}{4x}$$

$$\therefore \sec\theta + \tan\theta = \frac{4x^2 + 1}{4x} + \frac{4x^2 - 1}{4x}$$

$$= \frac{4x^2 + 1 + 4x^2 - 1}{4x} = \frac{8x^2}{4x} = 2x$$

71. (4)



In ΔABC & ΔBNC,

$\angle ABC = \angle BNC = 90°$

and $\angle C = \angle C$ (common)

$\therefore \Delta ABC \sim \Delta BNC$

and BC = $\sqrt{10^2 - 6^2} = 8$ cm

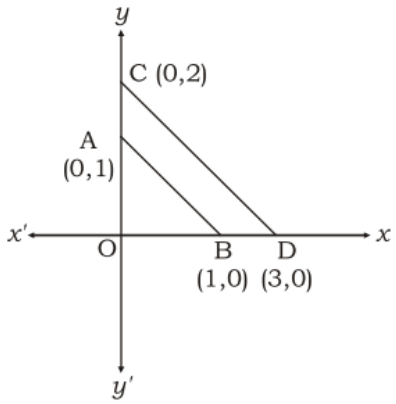
$$\therefore \frac{AC}{BC} = \frac{BC}{NC} \Rightarrow \frac{10}{8} = \frac{8}{NC}$$

$\Rightarrow NC = 6.4$

$\therefore AN = 10 - 6.4 = 3.6$

$\therefore AN : NC = 3.6 : 6.4 = 9 : 16$

72. (3)



x = 0 is the equation of y-axis.
y = 0 is the equation of x-axis.
Putting x = 0 in x + y = 1, y = 1
Putting y = 0 in x + y = 1 , x = 1
Putting x = 0 in 2x + 3y = 6
3y = 6 $\Rightarrow$ y = 2
Putting y = 0 in 2x + 3y = 6
2x = 6 $\Rightarrow$ x = 3
$\therefore$ OB = 1; OA = 1
OD = 3; OC = 2
$\therefore$ Required area = $\Delta OCD - \Delta OAB$

$$= \frac{1}{2}\times 3\times 2 - \frac{1}{2}\times 1\times 1$$

$$= 3 - \frac{1}{2} = 2\frac{1}{2} \text{ sq. units}$$

73. (3)

74. (1) $\tan\theta + \cot\theta = 2$

$$\Rightarrow \tan\theta + \frac{1}{\tan\theta} = 2$$

$$\Rightarrow \tan^2\theta - 2\tan\theta + 1 = 0$$

$$\Rightarrow (\tan\theta - 1)^2 = 0$$

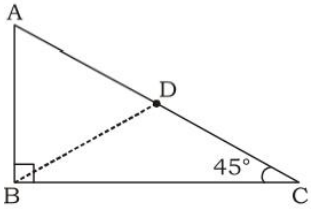
$$\Rightarrow \tan\theta - 1 = 0$$

$$\Rightarrow \tan\theta = 1$$

$$\therefore \cot\theta = 1 \Rightarrow \theta = 45°$$

$$\therefore \tan^n 45° + \cot^n 45° = 1 + 1 = 2$$

75. (1)



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

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

76. (1) Substitute 'do you ?' by 'would you ?' 'would' is used for making a 'polite request' in an interrogative sentence.

77. (1) Remove 'the' before 'life'. In general meaning, 'life' should not be preceded by an article.

78. (2) Add 'to' before 'Australia'.

79. (4) Beside' means 'by the side of' or 'adjacent to'.

80. (1)

81. (2) If the two actions take place in the past, and an action preceded the other then the 1st action should be in past perfect tense.

82. (1) 'The long and short of something' is a phrase which means 'the substance or gist of the general situation without giving details'.

83.	(2)	84.	(2)
85.	(1)	86.	(3)
87.	(2)	88.	(1)
89.	(1)	90.	(4)
91.	(2)	92.	(2)
93.	(4)	94.	(3)
95.	(2)	96.	(3)
97.	(3)	98.	(1)
99.	(2)	100.	(2)