SSC CGL - 170724 GRAND TEST
HINTS AND SOLUTIONS
### ANSWER KEY

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

1.　(4)　Only conclusion II follows. It was expected that crop condition wold improve after the rains.

2.　(2)　The position of Y from the right end of the English alphabetical series is 2 and that of V is 5. $(2)^2 = 4$ and $(5)^2 = 25$.
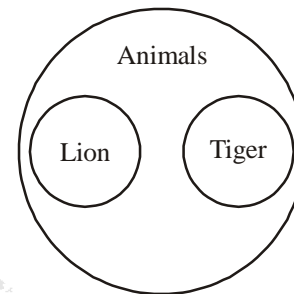
3.　(3)　D F H J ⟶ W U S Q
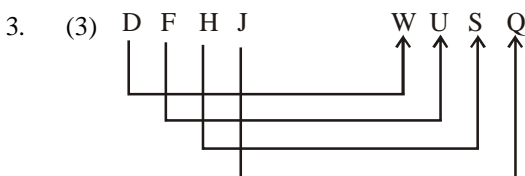
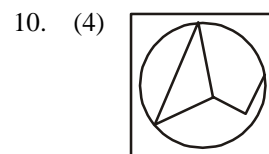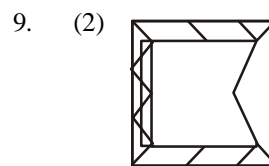Pairs of opposite letters.

Similarly,

H J L N ⟶ S Q O M
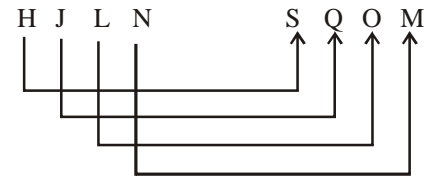
4.　(2)　Entomology is that branch of science which deals with insects. Similarly, the scientific study of snakes is called ophiology.

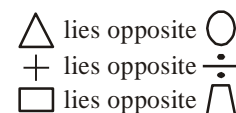5.　(3)　Tiger is different from lion. But both are animals.

6.　(3)　First Column $(2 \times 4) + (4 \times 6)$
$\Rightarrow 8 + 24 = 32$
Second Column $(3 \times 5) + (5 \times 7)$
$\Rightarrow 15 + 35 = 50$
Third Column $(8 \times 10) + (10 \times 12)$
$\Rightarrow 80 + 120 = 200$.

7.　(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 $2 \times 9 \times 4 + 12$
$\Rightarrow 72 + 12 = 84$.

8.　(4)　$5 = 2^2 + 1$　　　　$10 = 3^2 + 1$
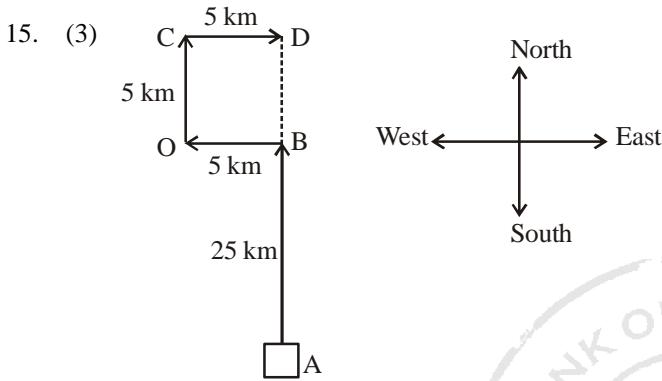$26 = 5^2 + 1$　　　$50 = 7^2 + 1$
$122 = 11^2 + 1$

9.　(2)

10.　(4)

11.　(4)　B R O W N / B R O W N / B

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

△ lies opposite ○
+ lies opposite ⋮
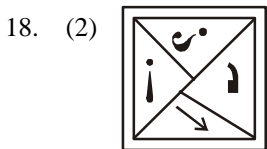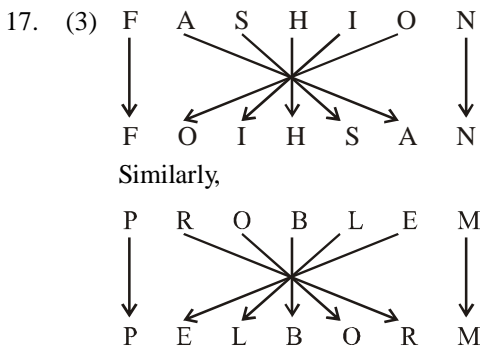□ lies opposite ⌂

13. (1)   F $\xrightarrow{+3}$ I $\xrightarrow{+3}$ L $\xrightarrow{+3}$

    A $\xrightarrow{+4}$ E $\xrightarrow{+4}$ I $\xrightarrow{+4}$

    K $\xrightarrow{+2}$ M $\xrightarrow{+2}$ O $\xrightarrow{+2}$

    $\begin{array}{|c|}\hline O\\ M\\ Q\\\hline\end{array}$

14. (3)   36 – 2 = 34
          34 – 4 = 30
          30 – 2 = 28
          28 – 4 = 24
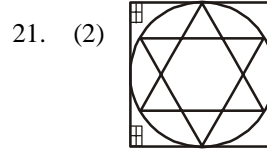   24 – 2 = 22

15. (3)

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

16. (4)   Difference between the ratios of Ann = 5 – 2 = 3
          : 3 ⇒ 21

          $\therefore\ :1 = \dfrac{21}{3} = 7$

17. (3)

    Similarly,

18. (2)

19. (4)   Except Bristol, all others are cities of Switzerland.
          Berne is the capital of Switzerland.

20. (2)   34 – 30 ⇒ (3 + 4) – (3 + 0) ⇒ 7 – 3 = 4.
          44 – 31 ⇒ (4 + 4) – (3 + 1) ⇒ 8 – 4 = 4.
          61 – 12 ⇒ (6 + 1) – (1 + 2) ⇒ 7 – 3 = 4.
          25 – 21 ⇒ (2 + 5) – (2 + 1) ⇒ 7 – 3 = 4.

21. (2)

22. (3)   There is no 'A' letter in the given word. Therefore, the word SITUATION cannot be formed.

    $\boxed{\text{D I S T R}}$ I $\boxed{\text{B U}}$ T I O N ⇒ D I S T U R B

    D I S $\boxed{\text{T}}$ R I B $\boxed{\text{U T I O N}}$ ⇒ T U T I O N

    D I $\boxed{\text{S T R}}$ I B $\boxed{\text{U T}}$ I O N ⇒ T R U S T

23. (4)   There are no 'C' and 'O' letters in the given word. Therefor word DOCTOR cannot be formed.

    $\boxed{\text{S U P E R}}$ $\boxed{\text{I N T E N}}$ D E N T ⇒ I N T E N S E

    $\boxed{\text{S U}}$ P $\boxed{\text{E R}}$ $\boxed{\text{I N}}$ T E N D E N T ⇒ N U R S E

    S U P E R $\boxed{\text{I}}$ N $\boxed{\text{T}}$ E N $\boxed{\text{D E N T}}$ ⇒ D E N T I S T

24. (1)   Arrangement of words as per dictionary :
          3. Conscience
          ↓
          2. Consciousness
          ↓
          5. Consequence
          ↓
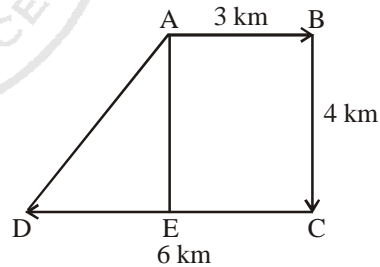   4. Conservation
          ↓
          1. Consume

25. (4)

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

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

51. (3)   A + B = 90° ⇒ A = 90° – B
          ⇒ sin A = sin (90° – B) = cos B
          Similarly,
          ⇒ cos A = sin B, tan A = cot B
          ∴ sin A . cos B + cos A . sin B
              – tan A . tan B + sec²A – cot²B
          = cos²B + sin²B – cot B . tan B + sec² A – tan² A
          = 1 – 1 + 1 = 1
          [∵ tan B . cot B = 1, sec² A – tan²A = 1]

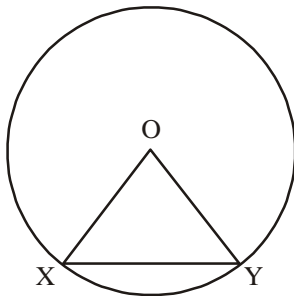52. (3)   4x = sec

          $\Rightarrow x = \dfrac{\sec\theta}{4}$

Again, $\dfrac{4}{x} = \tan\theta \Rightarrow \dfrac{1}{x} = \dfrac{\tan\theta}{4}$

$\therefore 8\left(x^2 - \dfrac{1}{x^2}\right) = 8\left(\dfrac{\sec^2\theta}{16} - \dfrac{\tan^2\theta}{16}\right)$

$\qquad\qquad = \dfrac{8}{16}\left(\sec^2\theta - \tan^2\theta\right) = \dfrac{1}{2}$

53. (1)

$\angle XOY = 90°;\ OX = OY = $ radius (r)
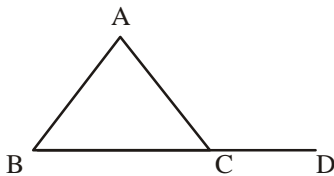
$\therefore \Delta XOY$ is a right angled triangle.

$\therefore \dfrac{1}{2} \times (OX) \times (OY) = 32$

$\Rightarrow r^2 = 2 \times 32 = 64$

$\therefore r = \sqrt{64} = 8$

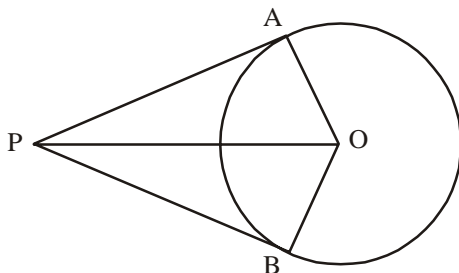$\therefore$ Area of circle $= \pi r^2 = 64\pi$ sq. units.

54. (2)

$\angle ACD = \angle ABC + \angle BAC$

$\Rightarrow 108° = \dfrac{\angle A}{2} + \angle A$

$\Rightarrow \dfrac{3\angle A}{2} = 108°$

$\Rightarrow \angle A = \dfrac{108 \times 2}{3} = 72°$

55. (3)

In right Δs OAP and OPB .

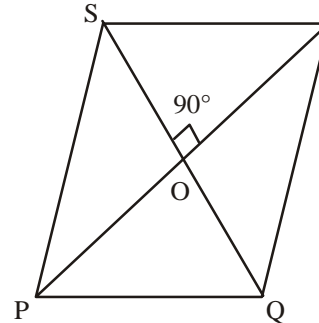AP = PB, OA = OB, OP = OP

$\therefore \Delta OAP = \Delta OPB$

$\therefore \angle AOP = \angle POB$ and $\angle APO = \angle OPB$

From ΔAOP,

$\angle APO = 180° - 90° - 60° = 30°$

$\angle APB = 2 \times 30° = 60°$

56. (2)

$\angle PQO = \dfrac{1}{2} PQR = 60°$

From $\Delta POQ,\ \angle OPQ = 180° - 90° - 60° = 30°$

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

$\Rightarrow OQ = PQ \sin 30° = 6 \times \dfrac{1}{2} = 3$
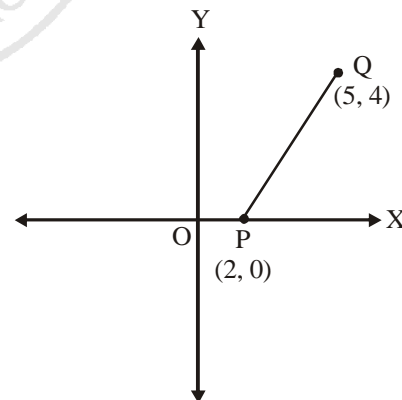
$\therefore QS = 2 \times 3 = 6$ m.

57. (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, $a - 4 < 10 \Rightarrow a < 14$

$\therefore 6 < a < 14$

58. (4)

$PQ = \sqrt{(5-2)^2 + (4-0)^2} = \sqrt{9+16} = 5$

$\therefore$ Area of circle $= \pi r^2 = 25\pi$ sq. units.

59. (1) $x + \dfrac{1}{x} = 3$

On sqaring, $\left(x + \dfrac{1}{x}\right)^2 = 9$

$\Rightarrow x^2 + \dfrac{1}{x^2} = 9 - 2 = 7$

Again, $\left(x + \dfrac{1}{x}\right)^3 = 27$

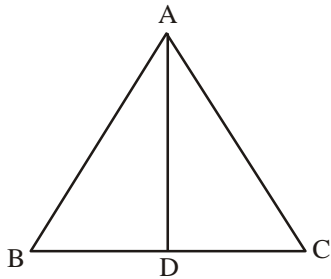$\Rightarrow x^3 + \dfrac{1}{x^3} + 3\left(x + \dfrac{1}{x}\right) = 27$

$\Rightarrow x^3 + \dfrac{1}{x^3} = 27 - 3 \times 3 = 18$

$\therefore \left(x^2 + \dfrac{1}{x^2}\right)\left(x^3 + \dfrac{1}{x^3}\right) = 7 \times 18$

$\Rightarrow x^5 + \dfrac{1}{x^5} + \left(x + \dfrac{1}{x}\right) = 126$

$\Rightarrow x^5 + \dfrac{1}{x^5} = 126 - 3 = 123$

60. (4)

BD = DC = AD
∠BAD = 30°
From ΔABD, ∠BAD = 30°
∴ ∠ADB = ∠BAD = 30°
∴ ∠ADB = 180° − 2 × 30° = 120°
∴ ∠ADC = 180° − 120° = 60°
∴ AD = DC
$\Rightarrow$ ∠DAC = ∠ACD = 60°

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

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

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

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

$\Rightarrow x = 3$

62. (4) Sum of the present ages of four boys
= 9 × 4 + 20 = 56 years
Sum of the present ages of five boys
= 15 × 5 = 75 years.
∴ Present age of new boy = 75 − 56 = 19 years.

63. (4) If the weight of a piece of diamond be 6x units, then

Original price $\alpha (6x)^2 = 36kx^2$

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

Again, New price $= k(x^2 + 4x^2 + 9x^2) = 14kx^2$

$= \dfrac{14 \times 5184}{36} = $ Rs.2016

∴ Loss = 5184 − 2016 = Rs.3168

64. (4) Part of the tank filled by both pipes in two hours

$= 2\left(\dfrac{1}{8} + \dfrac{1}{6}\right) = 2\left(\dfrac{3+4}{24}\right) = \dfrac{7}{12}$

Remaining part $= 1 - \dfrac{7}{12} = \dfrac{5}{12}$

Time taken by B in filling the remaining part

$= \dfrac{5}{12} \times 6 = \dfrac{5}{2} = 2\dfrac{1}{2}$ hours

65. (1) $a^3 + b^3 + c^3 - 3abc$
$= (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$

$= \dfrac{1}{2}(a + b + c)(2a^2 + 2b^2 + 2c^2 - 2ab - 2bc - 2ac)$

$= \dfrac{1}{2}(a + b + c)[(a-b)^2 + (b-c)^2 + (c-a)^2]$

$\therefore \dfrac{a^3 + b^3 + c^3 - 3abc}{a + b + c} = \dfrac{1}{2}\left[(a-b)^2 + (b-c)^2 + (c-a)^2\right]$

$= \dfrac{1}{2}(9 + 25 + 1) = \dfrac{35}{2} = 17.5$

66. (2) Interest = 5700 − 5000 = Rs.700

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

Case II, Interest $= \dfrac{\text{Principal} \times \text{Time} \times \text{Rate}}{100}$
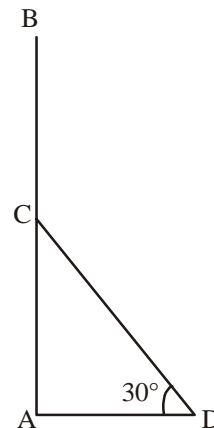
$= \dfrac{7000 \times 5 \times 14}{100} = $ Rs.4900

Amount = 7000 + 4900 = Rs.11900

67. (4) Effective profit percent $= \left(20 + 25 + \dfrac{20 \times 25}{100}\right) = 50\%$

$\therefore$ Original cost price $= \dfrac{100}{150} \times 1200 = $ Rs. 800

68. (4) Required nmber $= \dfrac{80 \times 120}{100} = 96$

69. (3)

AB = tree
BC = broken part

$\therefore$ BC = CD

AD = 30 metre

From $\triangle$ACD, $\tan 30° = \dfrac{AC}{AD}$

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

CD = AC $\sin 30° = 10\sqrt{3} \times \dfrac{1}{2} = 5\sqrt{3}$ = BC

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

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

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

71. (1) Required percentage increase

$= \dfrac{40-30}{30} \times 100 = \dfrac{100}{3} = 33\dfrac{1}{3}\%$

72. (1) Income of company in 2002 = Rs. 40 lakhs

Expenditure of company in 2003 = Rs. 40 lakhs.

73. (2) Profit of company in 2004 = Rs. 25 lakhs

74. (3) Required difference = 20 – 10 = Rs. 10 lakhs.

75. (1) Average income of company

$= \dfrac{30+50+40+60+60}{5} = \dfrac{240}{5}$ = Rs. 48 lakhs

The incomes of company in years 2001, 2003 and 2004 were greater than Rs. 48 lakhs.

76. (3) Here, to provide evidence/ as a witness .... should be used.

77. (2) Here, it is a preposition related error. Hence, at her should be used here.

79. (4) **Combat** = to stop something unpleasant or harmful from happening.

80. (4) **Deal with** = to be about something. Her poems often deal with the subject of death.

81. (3) The word **Invoice (Noun)** means : list of goods that have been sold; bill; statement.

82. (1) The word **Ameliorate (Verb)** means : to make something better; improve.

Look at the sentence : Government should take steps to ameliorate the situation.

83. (2) The word **Amorphous (Adjective)** means shapeless; irregular, having no definite shape.

84. (3) The word **Unitary (Adjeceive)** means : single; forming one unit.

Multiple = many in number.

85. (1) The word **Adulteration (Noun)** means : making impure by mixing; contamination.

The word **Purification (Noun)** means : making something pure by removing substances that are dirty, harmful.

86. (1) **Rule the roost** = to be the most powerful member of a group.

87. (1) **Eat humble pie** = to say and show that you are sorry for a mistake that you made.

88. (2) Here, even in a little quantity should be used. To use plural form is not proper.

89. (3) Conditional sentence is in Past Simple. Hence would you take .... should be used.

90. (1) Here, generality is evident. Hence, Present Simple should be used.

93. (4) **Saccharine** = sentimental.

94. (1) **Revolutionize** = to completely change the way that something is done.

95. (4) **Dysentery** = an infection of the bowels that causes severe diarrhoea with loss of blood.