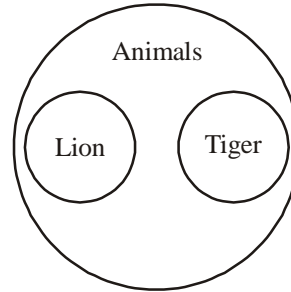


SSC - GRAND TEST - CGL-170203

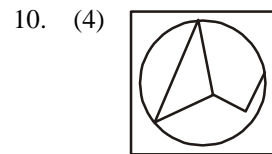
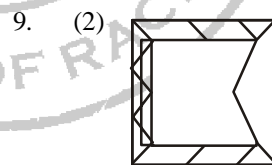
HINTS AND SOLUTIONS

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)

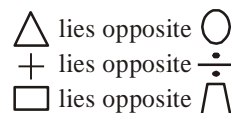
4. (2) Entomology is that branch of science which deals with insects. Similarly, the scientific study of snakes is called ophiology.
5. (3) Tiger is different from lion. But both are animals.



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) $5 = 2^2 + 1$ $10 = 3^2 + 1$
 $26 = 5^2 + 1$ $50 = 7^2 + 1$
 $122 = 11^2 + 1$

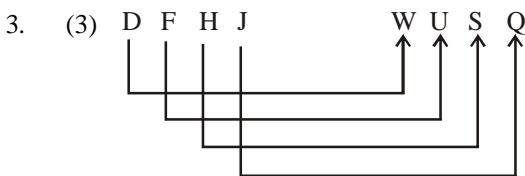


11. (4) B R **O W** N / B **R** O **W** N / B
12. (3) When paper is folded in the form of a cube, then

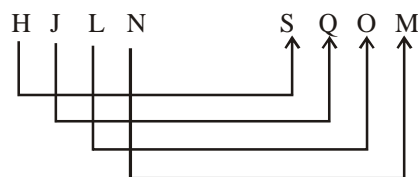


13. (1) $F \xrightarrow{+3} I \xrightarrow{+3} L \xrightarrow{+3} \begin{matrix} O \\ M \\ Q \end{matrix}$
 $A \xrightarrow{+4} E \xrightarrow{+4} I \xrightarrow{+4} \begin{matrix} O \\ M \\ Q \end{matrix}$
 $K \xrightarrow{+2} M \xrightarrow{+2} O \xrightarrow{+2} \begin{matrix} O \\ M \\ Q \end{matrix}$

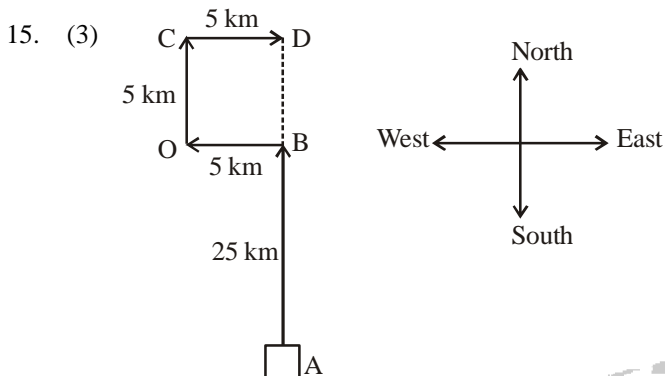
1. (4) Only conclusion II follows. It was expected that crop condition would improve after the rains.
2. (2) The position of Y from the right end of the English alphabetical series is 2 and that of V is 5. $(2)^2 = 4$ and $(5)^2 = 25$.



Pairs of opposite letters.
 Similarly,



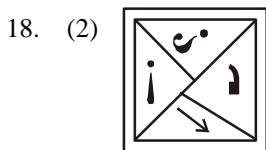
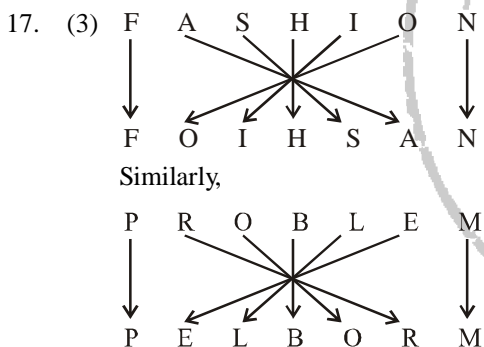
14. (3) $36 - 2 = 34$
 $34 - 4 = 30$
 $30 - 2 = 28$
 $28 - 4 = 24$
 $24 - 2 = 22$



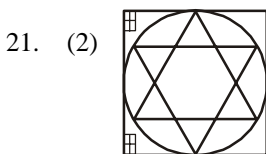
Required distance AD = (25 + 5) km = 30 km.

16. (4) Difference between the ratios of Ann = $5 - 2 = 3$
 $: 3 \Rightarrow 21$

$$\therefore 1 = \frac{21}{3} = 7$$



19. (4) Except Bristol, all others are cities of Switzerland. Berne is the capital of Switzerland.
20. (2) $34 - 30 \Rightarrow (3 + 4) - (3 + 0) \Rightarrow 7 - 3 = 4$.
 $44 - 31 \Rightarrow (4 + 4) - (3 + 1) \Rightarrow 8 - 4 = 4$.
 $61 - 12 \Rightarrow (6 + 1) - (1 + 2) \Rightarrow 7 - 3 = 4$.
 $25 - 21 \Rightarrow (2 + 5) - (2 + 1) \Rightarrow 7 - 3 = 4$.



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

DISTRI**BU**TION \Rightarrow DISTURB

DIS**T**RIB**U**TION \Rightarrow TUTION

DI**S**T**R**IB**U**TION \Rightarrow TRUST

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

SU**P**E**R**I**N**T**E**N**D**E**N**T \Rightarrow INTENSE

SU**P**E**R**I**N**T**E**N**D**E**N**T \Rightarrow NURSE

SU**P**E**R**I**N**T**E**N**D**E**N**T \Rightarrow DENTIST

24. (1) Arrangement of words as per dictionary :

3. Conscience



2. Consciousness



5. Consequence

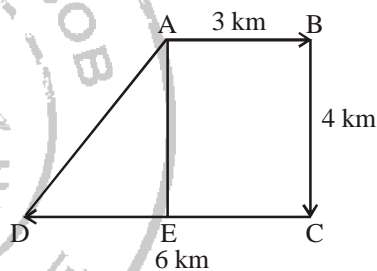


4. Conservation



1. Consume

25. (4)



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

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

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

52. (3) $4x = \sec$

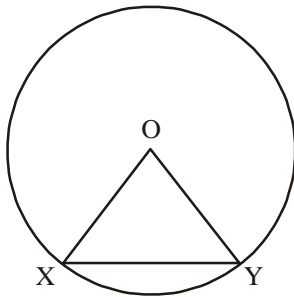
$$\Rightarrow x = \frac{\sec \theta}{4}$$

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

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

$$= \frac{8}{16} (\sec^2 \theta - \tan^2 \theta) = \frac{1}{2}$$

53. (1)



$\angle XOY = 90^\circ$; $OX = OY = \text{radius } (r)$
 $\therefore \Delta XOY$ is a right angled triangle.

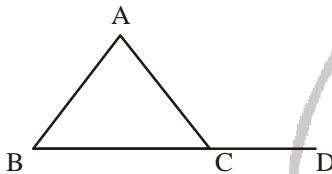
$$\therefore \frac{1}{2} \times (OX) \times (OY) = 32$$

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

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

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

54. (2)



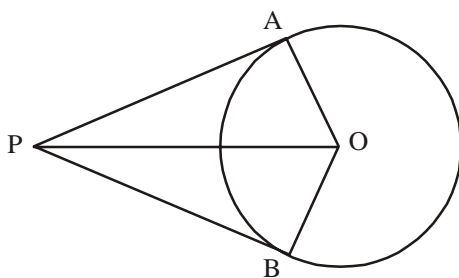
$$\angle ACD = \angle ABC + \angle BAC$$

$$\Rightarrow 108^\circ = \frac{\angle A}{2} + \angle A$$

$$\Rightarrow \frac{3\angle A}{2} = 108^\circ$$

$$\Rightarrow \angle A = \frac{108 \times 2}{3} = 72^\circ$$

55. (3)



In right Δ s OAP and OPB .

$AP = PB$, $OA = OB$, $OP = OP$

$\therefore \Delta OAP = \Delta OPB$

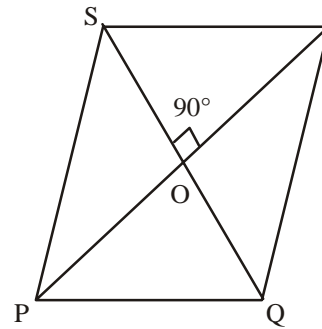
$\therefore \angle AOP = \angle POB$ and $\angle APO = \angle OPB$

From ΔAOP ,

$$\angle APO = 180^\circ - 90^\circ - 60^\circ = 30^\circ$$

$$\angle APB = 2 \times 30^\circ = 60^\circ$$

56. (2)



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

$$\text{From } \Delta POQ, \angle OPQ = 180^\circ - 90^\circ - 60^\circ = 30^\circ$$

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

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

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

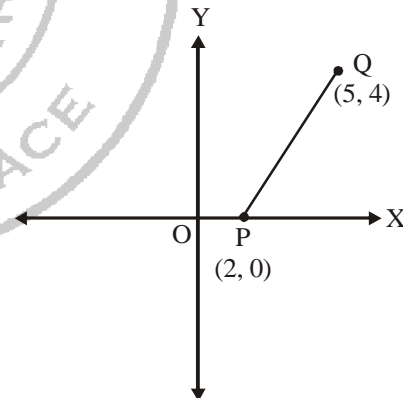
57. (4) The sum of any two sides of a triangle is greater than third side and their difference is less than third side.

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

$$\text{Again, } a - 4 < 10 \Rightarrow a < 14$$

$$\therefore 6 < a < 14$$

58. (4)



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

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

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

$$\text{On squaring, } \left(x + \frac{1}{x}\right)^2 = 9$$

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

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

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

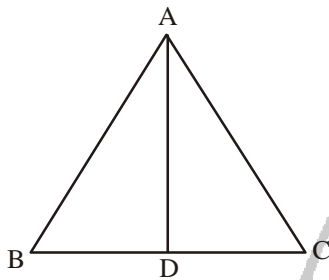
$$\Rightarrow x^3 + \frac{1}{x^3} = 27 - 3 \times 3 = 18$$

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

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

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

60. (4)



$$BD = DC = AD$$

$$\angle BAD = 30^\circ$$

From $\triangle ABD$, $\angle BAD = 30^\circ$

$$\therefore \angle ADB = \angle BAD = 30^\circ$$

$$\therefore \angle ADB = 180^\circ - 2 \times 30^\circ = 120^\circ$$

$$\therefore \angle ADC = 180^\circ - 120^\circ = 60^\circ$$

$$\therefore AD = DC$$

$$\Rightarrow \angle DAC = \angle ACD = 60^\circ$$

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
 $= 9 \times 4 + 20 = 56$ years

Sum of the present ages of five boys
 $= 15 \times 5 = 75$ years.

$$\therefore \text{Present age of new boy} = 75 - 56 = 19 \text{ years.}$$

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

$$\text{Original price} \propto (6x)^2 = 36kx^2$$

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

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

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

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

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

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

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

Time taken by B in filling the remaining part

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

65. (1) $a^3 + b^3 + c^3 - 3abc$

$$= (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$$

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

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

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

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

66. (2) Interest = $5700 - 5000 = \text{Rs.}700$

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

$$\text{Case II, Interest} = \frac{\text{Principal} \times \text{Time} \times \text{Rate}}{100}$$

$$= \frac{7000 \times 5 \times 14}{100} = \text{Rs.}4900$$

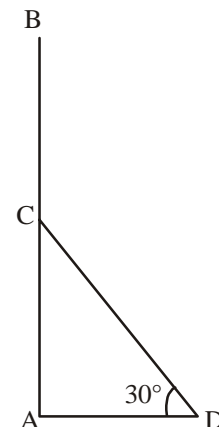
$$\text{Amount} = 7000 + 4900 = \text{Rs.}11900$$

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

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

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

69. (3)





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

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

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

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

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

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

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

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

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

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 (Adjective)** 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.