

SSC CGL - 170834 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1. (2) Student follows the teacher and disciple follows the religious leader.

2. (1)
$$\begin{array}{cc} 182 & 342 \\ \downarrow & \downarrow \\ 13^2+13 & 18^2+18 \\ \downarrow & \downarrow \\ 5 & 5 \end{array}$$

$$\begin{array}{cc} 210 & 380 \\ \downarrow & \downarrow \\ 14^2+14 & 19^2+19 \\ \downarrow & \downarrow \\ 5 & 5 \end{array}$$

3. (3) As, A D H M
 $\downarrow \downarrow \downarrow \downarrow$ opposite
 Z W S N
 Similarly, C F J O
 $\downarrow \downarrow \downarrow \downarrow$ opposite
 X U Q L

4. (4) As smoke results pollution similarly battle results Destruction.

5. (3) Except Kohima, others are state.

6. (4)
$$\begin{array}{cccc} 117 & 13 & 162 & 18 & 171 & 19 & 304 & 16 \\ \downarrow & & \downarrow & & \downarrow & & \downarrow & \\ \times 9 & & \times 9 & & \times 9 & & \times 19 & \end{array}$$

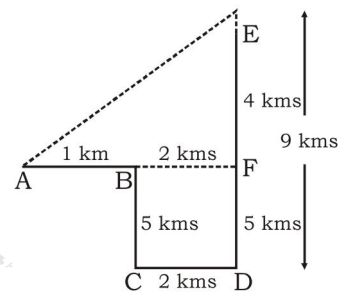
7. (1)
$$\begin{array}{cccc} A & C & D & F & T & U & O & P \\ \downarrow & & \downarrow & & \downarrow & & \downarrow & \\ +2 & & +2 & & +1 & & +1 & \end{array}$$

$$\begin{array}{cccc} H & I & V & W & F & G & I & J \\ \downarrow & & \downarrow & & \downarrow & & \downarrow & \\ +1 & & +1 & & +1 & & +1 & \end{array}$$

8. (3) Narmada falls in Arabian Sea where as the rest three falls in Bay of Bengal.

9. (2) The region which represents all three i.e., owner, broker and worker is 'T'.

10. (3)



AF = 3 kms, EF = 4 kms

$$\therefore AE = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5 \text{ kms}$$

So, he is 5 kms away from the starting point.

11. (3) Sunita's Grandfather's only son is his father and father's son is his brother.

12. (2) As, P A S S P O R T
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 R C U U R Q T V
 So, B O O K L E T
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 D Q Q M N G V

13. (2) $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{7}{16}, \frac{9}{32}, \frac{11}{64}, ?$

Here we have two series-

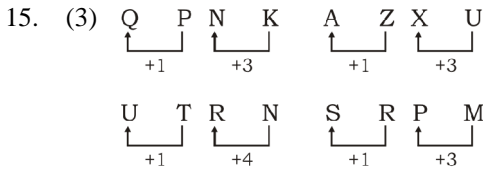
1st series:- 1, 3, 5, 7, 9, 11, 13
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 $\times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

2nd series:- 2, 4, 8, 16, 32, 64, 128
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 $\times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

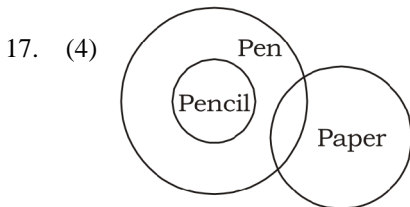
So next term is $\frac{13}{128}$.

14. (1) $Z = 52 = 2 \times (26)$
 ACT = $2 \times (1 + 3 + 20)$
 = $2 \times 24 = 48$
 EAT = $2 \times (5 + 1 + 20)$
 = $2 \times 26 = 52$

actual position in english alphabet
 actual position in english alphabet
 actual position in english alphabet



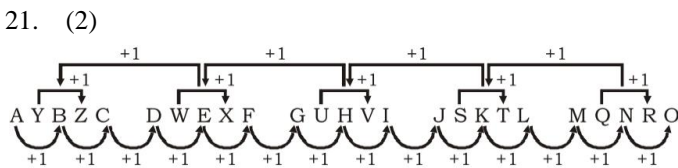
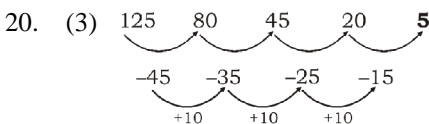
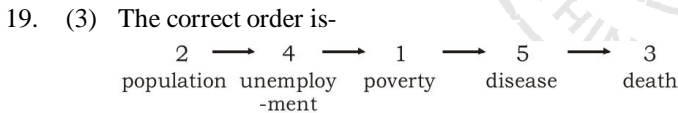
16. (4) Number of people who know all three subjects = 100
 Number of people who know only civics = 170
 \therefore Required Ratio = $\frac{100}{170} = \frac{10}{17}$



I. ✓
 II. ✓

Both (I) & (II) follow.

18. (4) The word 'COMMUNICATE' can't be formed from the word 'RECOMMENDATION' as we can't find the word 'U' in RECOMMENDATION.



22. (4)

$$x = \begin{matrix} \boxed{3} & \boxed{4} & \boxed{5} \\ \boxed{6} & \boxed{8} & \boxed{10} \\ \boxed{216} & \boxed{512} & \boxed{?} \end{matrix} \times 2$$

$x = 6, 8, 10$
 $\Rightarrow x^3 = 216, 512, 1000$
 So, ? = 1000

23. (2) We can observe from the given diagram that number 3 represents indian professors who are also lawyers.

24. (3) Given equation:-
 $8 \times 2 + 3 - 5 = 21$
 let us change 'x' and '-' signs then we have
 $8 - 2 + 3 \times 5 = 8 - 2 + 15 = 23 - 2 = 21$
 So, (3) is the right option.

25. (3)

51. (3) Selling price = $60 \times \frac{115}{100} \times \frac{120}{100} = \text{₹} 82.8$

52. (1) Let the cost price of each goat = ₹ 100
C.P **S.P**
 1st goat $\rightarrow 100_{\times 9} \xrightarrow{-20\%} 80_{\times 9}$
 2nd goat $\rightarrow 100_{\times 5} \xrightarrow{+44\%} 144_{\times 5}$ } same
 \therefore cost price of 1st goat

= $\frac{900}{1400} \times 1008 = \text{₹} 648$

53. (4) Let the time taken by 3 men = x days
 Time taken by 9 women = x + 5 days
 3m = x day

$2m = \frac{3x}{2}$ days

Similarly, $9w = x + 5$ days
 $3w = 3(x + 5)$ days
 ATQ,

$\frac{2}{3x} + \frac{1}{3(x+5)} = \frac{1}{6} \Rightarrow \frac{2x+10+x}{3x(x+5)} = \frac{1}{6}$

$\Rightarrow 18x + 60 = 3x^2 + 15x \Rightarrow 3x^2 - 3x - 60 = 0$
 $\Rightarrow x^2 - x - 20 = 0 \Rightarrow x = 5$

Time taken by 1 man = $3x = 3 \times 5 = 15$ days
 Time taken by 1 women = $9(x + 5) = 90$ days
 Required output = 6 times

54. (2) Let the given number be x.
 Then,

$\left(x \times \frac{3}{2}\right) - \left(x \div \frac{3}{2}\right) = 10$

$\Rightarrow \frac{3}{2}x - \frac{2}{3}x = 10 \Rightarrow \frac{9x - 4x}{6} = 10$
 $\Rightarrow 5x = 60 \Rightarrow x = 12$

55. (2) SI = ₹ (7200 - 6000) = ₹ 1200

$\therefore SI = \frac{P \times R \times T}{100} \Rightarrow 1200 = \frac{6000 \times R \times 4}{100}$

$\Rightarrow R = \frac{1200 \times 100}{6000 \times 4} = 5\%$

New rate of R = $5 \times 1.5 = 7.5\%$

Then, SI = $\frac{6000 \times 7.5 \times 5}{100} = \text{₹} 2250$

\therefore Amount = ₹ (6000 + 2250) = ₹ 8250

56. (3) Let the principal be x

\therefore Principal SI = $\frac{7x}{4}$

$\therefore SI = \frac{7x}{4} - x = \frac{3x}{4}$

Rate = $\frac{SI \times 100}{\text{Principal} \times \text{Time}}$

$$= \frac{3x \times 100}{4 \times x \times 4} = 18\frac{3}{4}\%$$

57. (4) Average of 9 consecutive no. = n
 ∴ Fifth number = n
 Tenth number = n + 5
 Eleventh number = n + 6

$$\text{New average} = \frac{9n + n + 5 + n + 6}{11}$$

$$= \frac{11n + 11}{11} = \frac{(n+1) \times 11}{11} = n + 1$$

58. (3) Pipe A can fill a tank = 20 minutes
 Let the efficiency of pipe A = 100
 Then the efficiency of 5 new pipes

$$= 100 \times \frac{20}{100} \times 5 = 100$$

$$M_1 D_1 = M_2 D_2 \\ \Rightarrow 20 \times 100 = 100 \times D_2 \\ \Rightarrow D_2 = 20 \text{ min}$$

59. (3) Let the number be x.

Then,
 $x^2 = (75.15)^2 - (60.12)^2 \\ = (75.15 + 60.12)(75.15 - 60.12) \\ = 135.27 \times 15.03 = 2033.1081$

$$\therefore x = \sqrt{2033.1081} = 45.09$$

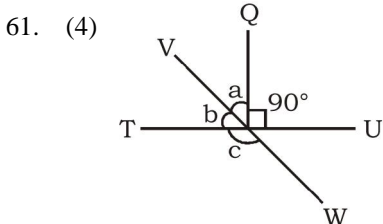
60. (3) Dog : Cat
 Leap/min 5 : 4
 Distance/leap 8 m : 5 m
 Speed- 40 m/min : 20 m/min

$$\text{Relative speed- } 20 \text{ m/min}$$

$$\text{Actual distance b/w cat \& dog} = 50 \times 8 = 400 \text{ m}$$

$$\text{Time taken by dog} = \frac{400}{20} = 20 \text{ min}$$

$$\text{Distance travelled by dog} = 20 \times 40 = 800 \text{ m}$$



$$\angle a = 36^\circ \\ \angle b = 54^\circ \\ \therefore \text{value of } \angle c = 180^\circ - \angle 54 \\ \Rightarrow \angle c = 126^\circ$$

62. (2) Teacher's age
 $= 16 \times 10 - 19 \times 4 - 5 \times 10 \\ = 160 - 76 - 50 = 34 \text{ years}$

63. (3) Let the numbers be x, y and z.
 Then,
 $x : y = 2 : 3$

$$y : z = 5 : 8$$

$$\therefore x : y : z = 2 \times 5 : 3 \times 5 : 3 \times 8 = 10 : 15 : 24$$

$$\text{Sum of the ratios} = 10 + 15 + 24 = 49$$

$$\therefore \text{The second number} = \frac{15}{49} \times 98 = 30$$

64. (1) In 400 gm of alloy.

$$\text{Zinc} = \frac{5}{8} \times 400 = 250 \text{ gm}$$

$$\text{Copper} = \frac{3}{8} \times 400 = 150 \text{ gm}$$

x gm of copper be mixed, then

$$\frac{250}{150 + x} = \frac{5}{4} \Rightarrow 750 + 5x = 1000$$

$$\Rightarrow 5x = 1000 - 750 = 250 \Rightarrow x = 50 \text{ gm}$$

65. (2) Given $5N = 15R$

$$N : R = 3 : 1 \text{ \& } 10R = 20K$$

$$R : K = 2 : 1$$

$$N : R : K$$

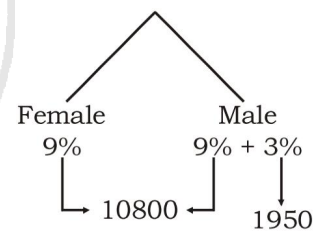
$$3 : 1 : 2$$

$$\frac{6 : 2 : 1}{2 : 1}$$

$$\begin{array}{ccc} \downarrow \times 2000 & & \downarrow \times 2000 \\ 12000 & & 2000 \end{array}$$

Nitya's income 12000

66. (4) Total population $\rightarrow 120000$



Total population of male = 65000

∴ No. of females = 67750

∴ Required Diff. = 2750

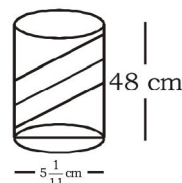
67. (3) $AB \parallel CD \parallel PQ$ (Given)

Let $AB = a$, $PQ = b$, $CD = c$

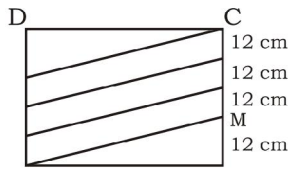
$$\therefore \frac{1}{b} = \frac{1}{a} + \frac{1}{c} \Rightarrow \frac{1}{b} = \frac{1}{12} + \frac{1}{8} \Rightarrow \frac{1}{b} = \frac{3+2}{36}$$

$$\Rightarrow \frac{1}{b} = \frac{5}{36} \Rightarrow b = \frac{36}{5} \text{ cm}$$

68. (1)



when we open it



A — 16 cm — B
the base circumference

$$= 2\pi r = 2 \times \frac{22}{7} \times \frac{56}{11} \times \frac{1}{2} = 16 \text{ cm}$$

∴ AM = length of one complete turn

$$= \sqrt{16^2 + 12^2} = 20 \text{ cm}$$

∴ total length = 4 × 20 = 80 cm

69. (4) Given $\frac{P^2 - 4P + 4}{4P} = 8$

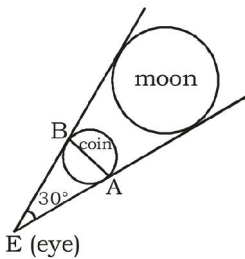
$$= \frac{P^2 - 4P + 4}{P} = 32$$

$$= \frac{P^2}{P} - \frac{4P}{P} + \frac{4}{P} = 32$$

$$\Rightarrow P - 4 + \frac{4}{P} = 32$$

$$\Rightarrow P + \frac{4}{P} = 36$$

70. (2)



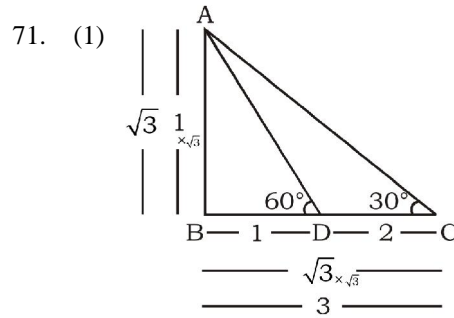
$$\theta = 30^\circ = \left(\frac{30}{60}\right)^\circ = \left(\frac{1}{2}\right)^\circ$$

$$= \left(\frac{1}{2} \times \frac{\pi}{180}\right)^C = \left(\frac{\pi}{360}\right)^C$$

$$\theta = \frac{\text{Arc}}{\text{radius}} = \frac{\pi}{360} = \frac{4.4}{r}$$

$$\Rightarrow r = \frac{4.4 \times 360}{\pi} \text{ cm} = \frac{4.4 \times 360}{22} \times 7$$

$$r = 504 \text{ cm}$$



∴ AB = $\sqrt{3}$ = 30 given

∴ CD = $\frac{30}{\sqrt{3}} \times 2 = 20\sqrt{3}$

72. (1) ∴ $x = \frac{1}{y}$

∴ $x + \frac{1}{x} = 4$

ATQ,

$$\frac{x^2 + y^2}{x^3 + y^3} = \frac{x^2 + \frac{1}{x^2}}{x^3 + \frac{1}{x^3}} = \frac{14}{52} = \frac{7}{26}$$

73. (3) Let a = b = c = 2, then 2s = 6 ⇒ s = 3
∴ (s - a)³ + (s - b)³ + 3(s - a)(s - b)c
= (3 - 2)³ + (3 - 2)³ + 3(3 - 2)(3 - 2) × 2
= 1 + 1 + 3 × 2 = 8 = c³

74. (3) Formula:- (B)³ + 3(B)² - (B)¹ + (B)²
= B denotes base = 2
= (2)³ + 3(2)² - (2)¹ + (2)²
= 8 + 12 - 2 + 4 = 22 + 26
= 48

75. (4) Assume $\theta = 45^\circ$

then $4m = 1 \times \left(1 + \frac{1}{\sqrt{2}}\right)$

$m = \frac{\sqrt{2} + 1}{4\sqrt{2}}$ and $n = \frac{\sqrt{2} - 1}{4\sqrt{2}}$

∴ $m^2 - n^2 = \frac{1}{32} [(\sqrt{2} + 1)^2 - (\sqrt{2} - 1)^2]$

= $\left[\frac{1}{32}(4\sqrt{2})\right]$

⇒ $(m^2 - n^2) = \frac{1}{32}$

From options-

$mn = \frac{\sqrt{2} + 1}{4\sqrt{2}} \cdot \frac{\sqrt{2} - 1}{4\sqrt{2}} = \frac{1}{32}$

∴ $(m^2 - n^2) = mn$