SSC CGL - 170603 GRAND TEST
HINTS AND SOLUTIONS

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

1. (1)

2. (3) As, $123 + 3^2 = 123 + 9 = 132$
    So, $235 + 5^2 = 235 + 25 = 260$
3. (2) Second is the process of gradual disappearances of the first.
4. (2) $2197 = 13^3$
    $19683 = 27^3$
5. (4) All except Park are halting places of various transport means.
6. (4) Except (4), each contains 2 consonants and 3 vowels.
7. (3) Except (3), in all options first and last & middle two letters are opposite.

8. (4)
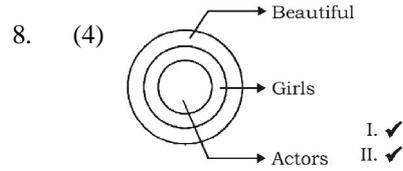
    Both I and II follows.
9. (4) $Q > P > T$ and $S > Q > R$
    From the above two relations, it is clear that S runs fastest among all.
10. (3) The word 'SHINE' can be formed.
11. (4) Putting the proper signs in the given expression,
    We get: $252 \div 9 \times 5 - 32 + 92$
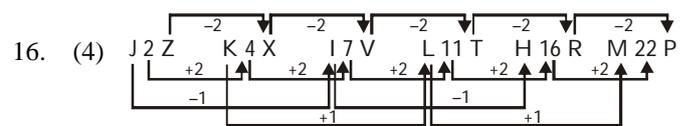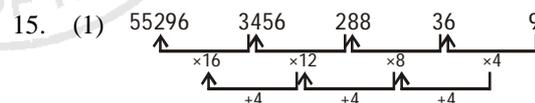 $= 28 \times 5 - 32 + 92 = 140 - 32 + 92 = 232 - 32 = 200$
12. (1)
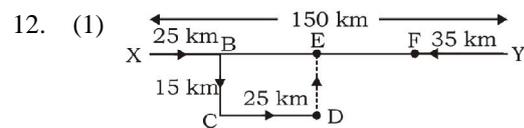
    Required distance = EF
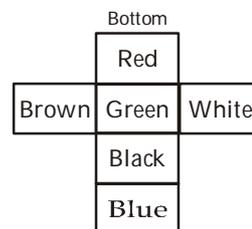 $= 150 - (25 + 25 + 35)$
    $= 150 - 85 = 65$ kms
13. (2) All the thieves are criminals while judge is different from these.
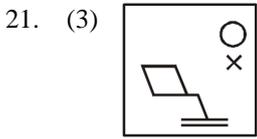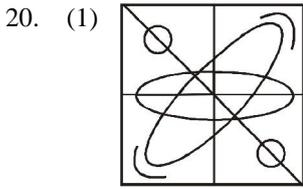
14. (4) Q $ R → Q is the father of R
    R @ T → R is the brother of T
    Hence, Q is the father of T
    T * M → T is the daughter of M
    Hence, M is the mother of T
    Hence, M is the wife of Q.
15. (1)

16. (4)

17-18.

17. (2) White is opposite to brown.
18. (1) (Black, White, Brown and Red) are adjacent to green.
19. (1) $(11 + 9) \times (11 - 9) = 40$
    $(15 + 7) \times (15 - 7) = 176$
    $(25 + 21) \times (25 - 21) = 184$

20. (1)

21. (3)

22. (4) Let salary = Rs. x. Then tips = Rs. $\left(\dfrac{5}{4}x\right)$

Total income = Rs. $\left(x + \dfrac{5}{4}x\right)$ = Rs. $\left(\dfrac{9x}{4}\right)$

∴ Required fraction = $\left(\dfrac{5x}{4} , \dfrac{4}{9x}\right) = \dfrac{5}{9}$

23. (4) Except the figure in option (4), all other figures can be rotated into each other.

24. (1)

25. (3)

51. (2) Per copy cost price for the customer of 45 magazines

$= \dfrac{7}{10} \times 90 = $ Rs.63

Per copy cost price for the buyer of 26 magazine

$= \dfrac{3}{4} \times 90 = $ Rs.67.50

∴ Required diff. = 67.50 – 63 = ` 4.50

52. (2) Relative speed of both trains = 45 + 45 = 90 km/h

∴ time taken by trains $= \dfrac{450}{90} = 5$ hrs.

∴ distance covered by crow = $100 \times 5 = 500$ km

53. (3) S.I for 2 years = 25%
C.I for 2 years = 26.5625%

∴ Required sum $= \dfrac{510}{26.5625} \times 25 = $ Rs.480

54. (3)
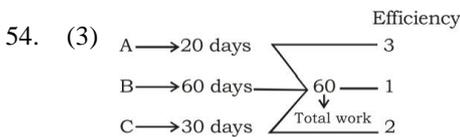
According to the question,
5 days work of (A + B + C) = 6 × 5 = 30
Now C left the work. So next 3 days A and B will work
Work done by A and B = 4 × 3 = 12 units
Remaining work = (60 – 42) = 18 units
Required time for A to complete the rest of the work

$= \dfrac{18}{3} = 6$ days

55. (4) $n + \dfrac{2n}{3} + \dfrac{n}{2} + \dfrac{n}{7} = 97$

$\Rightarrow \dfrac{42n + 28n + 21n + 6n}{42} = 97$

$\Rightarrow \dfrac{97n}{42} = 97$

$\Rightarrow n = \dfrac{97 \times 42}{97} = 42$
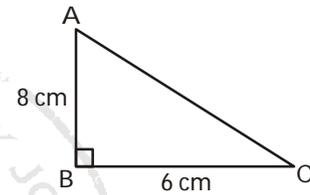
56. (4) If x = 7
$x^5 - 8x^4 + 8x^3 - 9x^2 + 7x + 5$
split it in form of x
$x^5 - 7x^4 - x^4 + 7x^3 + x^3 - 7x^2 - 2x^2 + 7x + 5$
Put x in the place of 7
then $x^5 - x^5 - x^4 + x^4 + x^3 - x^3 - x^2 - x^2 + x^2 + 5 - x^2 + 5$
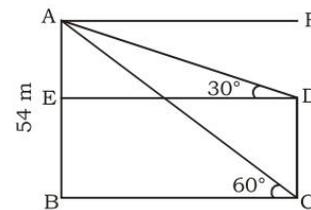$- 49 + 5 = - 44$

57. (1)

$AC = \sqrt{6^2 + 8^2} = 10$ cm

∴ circum radius $= \dfrac{10}{2} = 5$ cm

i.e. mid-point of hypotenuse.

58. (3) If $a + \dfrac{1}{a} = 1$, then $a^3 = - 1$

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

59. (2)

AB = temple = 54 m
CD = temple = h m
BC = width of river = x m
From DABC,

$\tan 60° = \dfrac{AB}{BC}$

$\Rightarrow BC = \dfrac{54}{\sqrt{3}} = 18\sqrt{3}$ m

From $\triangle ADE$,

$\tan 30° = \dfrac{AE}{DE}$ $[\because DE = BC = 18\sqrt{3}]$

$\Rightarrow \dfrac{1}{\sqrt{3}} = \dfrac{54 - h}{18\sqrt{3}}$

$\Rightarrow 54 - h = 18$

$\Rightarrow h = 54 - 18 = 36$ m

60. (1) Area of the circle $= \pi r^2 = \pi(2)^2 = 4\pi$

The circle is cut to make a square

$\therefore$ Perimeter of square = Perimeter of circle

$\Rightarrow 4a = 2\pi r \Rightarrow a = \dfrac{2\pi \times 2}{4} = \pi$

$\therefore$ Area of the square $= a^2 = \pi^2$

$\therefore$ required ratio $= \dfrac{4\pi}{\pi^2} = 4 : \pi$

61. (3) $(a^2 - b^2)\sin\theta + 2ab\cos\theta = a^2 + b^2$

or $\left(\dfrac{a^2 - b^2}{a^2 + b^2}\right)\sin\theta + \left(\dfrac{2ab}{a^2 + b^2}\right)\cos\theta = 1$

On comparing it by

$\sin^2\theta + \cos^2\theta = 1$

We get $\sin\theta = \dfrac{a^2 - b^2}{a^2 + b^2}$ and $\cos\theta = \dfrac{2ab}{a^2 + b^2}$

$\therefore \tan\theta = \dfrac{\sin\theta}{\cos\theta} = \dfrac{a^2 - b^2}{2ab}$

62. (3) Let the C.P. of each article be Rs. x

$\therefore \dfrac{50x \times 120}{100} + \dfrac{50x \times 140}{100} - \dfrac{100x \times 125}{100} = 100$

$\Rightarrow 60x + 70x - 125x = 100 \Rightarrow 5x = 100 \Rightarrow x = \text{Rs.}20$

63. (3) 25% (stolen) + 10% (Dropped)

$\Rightarrow 35\% = \dfrac{7}{20}$, $50\% = \dfrac{1}{2}$

$$
\begin{array}{ccc}
\text{Sum} & - & \text{Remain} \\
20 & - & 13 \\
2 & - & 1 \\
\hline
40 & - & 13 \\
\downarrow {\times}130 & & \downarrow {\times}130 \\
5200 & & 1690
\end{array}
$$

64. (3) $\dfrac{M_1 D_1 T_1}{W_1} = \dfrac{M_2 D_2 T_2}{W_2}$

$\Rightarrow \dfrac{16 \times 6 \times 25}{150 \times 20 \times 12} = \dfrac{12 \times 8 \times D}{800 \times 15 \times 6}$

After solving this $D_2 = 50$ days

65. (1) Sum of temperatures on 1st, 2nd, 3rd and 4th days
$= (58 \times 4) = 232$ degrees

Sum of tempratures on 2nd, 3rd, 4th and 5th days
$= (60 \times 4) = 240$ degrees
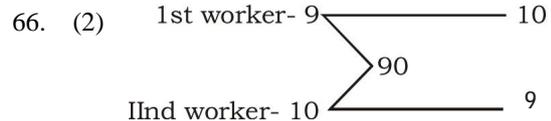
Temprature on 5th day – temprature on 1st day = 8 degrees

Let the temprature on 1st and 5th days be 7x and 8x degrees respectively.

Then, $8x - 7x = 8$

$\therefore 8 \times 8 - 7 \times 8$

$x = 8$

$\therefore$ Temprature on 5th day $= 8 \times 8 = 64°$

66. (2)

$$
\begin{array}{l}
\text{1st worker- } 9 \quad\longrightarrow\quad 10 \\
\qquad\qquad\qquad 90 \\
\text{IInd worker- } 10 \quad\longrightarrow\quad 9
\end{array}
$$

According to question,

(Ist + IInd) = 19 unit

(given) $\dfrac{90}{5}$ = 18 unit   1 unit

$\therefore$ 1 unit = 10

$\therefore$ Total no. of gems $= 90 \times 10 = 900$

67. (4) $\angle AOC = \angle BOD$

$\therefore \angle AOC = 40°$

According to question,

$\angle BOE = 30°$

$\therefore \angle COD + \angle DOB + \angle BOE = \text{Reflexive } \angle COE$

$\therefore 180° + 40° + 30° = \text{Reflexive } \angle COE$

$\therefore \angle COE = 250°$

68. (3) Let the numbers be 3x and 3y.

$\therefore 3x + 3y = 36$

$\Rightarrow x + y = 12$ ...(i)

and $3xy = 105$ ...(ii)

Dividing equation (i) and (ii),

$\dfrac{x}{3xy} + \dfrac{y}{3xy} = \dfrac{12}{105} \Rightarrow \dfrac{1}{3y} + \dfrac{1}{3x} = \dfrac{4}{35}$

69. (3) Between 100 and 200 are 102, 105, ..., 198
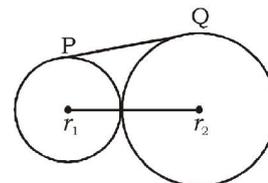
Let number of terms = n

$\therefore 198 = 102 + (n - 1)^3$

$\Rightarrow n - 1 = \dfrac{198 - 102}{3} = 32$

$n = 33$

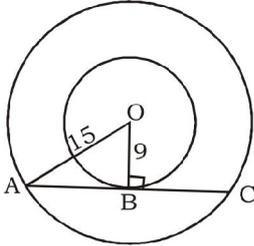$\therefore S = \dfrac{n}{2} \times (a + l) = \dfrac{32}{2}(102 + 198) = 4950$

70. (4)

$PQ = 2\sqrt{r_1 r_2} = 2\sqrt{4 \times 9} = 12$ cm

$\therefore$ Area of the square (having side PQ = 12 cm)

$= 12^2 = 144$ cm²

71. (4) $3 \cos 80°.\ \mathrm{cosec}\,10° + 2\cos 59°.\ \mathrm{cosec}\,31°$
    $= 3\cos(90° - 10°).\ \mathrm{cosec}\,10° + 2\cos(90° - 31°).\ \mathrm{cosec}\,31°$
    $= 3 \sin 10°.\ \mathrm{cosec}\,10° + 2 \sin 31.\ \mathrm{cosec}\,31°$
    $= 3 + 2 = 5$

72. (1)

   In ΔOAB,
   $OB \perp AB$
   $\therefore\ OB^2 + AB^2 = OA^2$
   $\Rightarrow 9^2 + AB^2 = 15^2$
   $\Rightarrow AB^2 = 225 - 81 = 144$
   $\Rightarrow AB = 12$ cm
   $\therefore$ The length of the chord is $2 \times 12 = 24$cm

73. (2) Percentage increase
   $= \dfrac{125 - 105}{105} \times 100 = \dfrac{20}{105} \times 100 \approx 19\%$

74. (1) Percentage decrease
   $= \dfrac{200 - 180}{200} \times 100 = \dfrac{20}{200} \times 100 = 10\%$

75. (3) Total production of toys in 2005 = 675 thousand
   Total production of toys in 2006 = 750 thousand
   Percentage increase $= \dfrac{750 - 675}{675} \times 100 = 11\%$

76. (2) Replace 'although' by 'but', as but should be used here to suggest a contrast.

78. (2) The tense of the first part (is - present tense) does not match with the second part (could - past tense), though the sentence refers a past event. Thus, replace 'is' by 'was'.

80. (2) When two actions take place in past then earlier one takes past perfect tense and the 2 nd one simple present tense.

90. (3) Sentence starting with 'Hardly' takes an inversion form.

91. (1) 'None' takes singular verb after it.

92. (2) When an action is complete, it will take **having + V$_3$** form.