## SSC CGL - 180611 GRAND TEST
## HINTS AND SOLUTIONS
### ANSWER KEY

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

1. (1) Any change in the first is made by the means of second.

2. (2) Dividing the first number by 7 will give the second number.

3. (3) The relationship is $x : \dfrac{x^3}{2}$

   Put x = 8, then $\dfrac{x^3}{2} = \dfrac{8^3}{2} = 256$

   Put x = 10, then $\dfrac{x^3}{2} = \dfrac{10^3}{2} = 500$

4. (4) A clue can help to solve a mystery. Similarly, a warning can help to prevent a danger.

5. (3) In all other pairs, second number

   = (First number − 5)/3 & (100 − 5)/3 $= \dfrac{95}{3} \neq 30$

6. (2) Argentina is a country whereas rest are continents.

7. (1) All except Jackal are the creatures related to sign of Zodiac.

8. (1) 4, 2, 1, 3

9. (3) From the four die, we have concluded that digits 6, 4,1 and 2 appear adjacent to 3.
   Clearly, there will be 5 on the face opposite to 3.

10. (1) The watch gains 5 seconds in 3 minutes which means 100 seconds in 1 hour. From 8 AM to 10 PM on the same day, total time passed is 14 hours (840 minutes).

    In 14 hours, the watch would have gained $\left(\dfrac{5}{3} \times 840\right)$

    i.e. 1400 seconds or 23 minutes 20 seconds.
    So, when the correct time is 10 PM, the watch would show 10 : 23 : 20 PM.

11. (2) (5 + 11) ÷ (4 + 4) = 16 ÷ 8 = 2
    (7 + 13) ÷ (1 + 3) = 20 ÷ 4 = 5
    (? + 20) ÷ (5 + 3) = 4

    $\Rightarrow \dfrac{?+20}{8} = 4 \Rightarrow ?+20 = 32 \Rightarrow ? = 32 - 20 \Rightarrow ? = 12$

12. (2) $\sqrt[3]{125} = 5$ & 5 × 12 = 60

    $\sqrt[3]{27} = 3$ & 3 × 13 = 39

    $\sqrt[3]{216} = 6$ & 6 × 3 = 18

13. (2) Continuous prime numbers are written in three rows.
    So, ? = 13

14. (3) O̲P̲QNO̲P̲RS̲T̲DE̲F̲ = POSE
    S̲T̲UX̲Y̲ZO̲P̲QDE̲F̲ = TYPE

15. (2) The pattern is +84, −168, +336, −672.
    So, required answer = 815 − 672 = 143
    Also, 84 = 84 × $2^0$, 168 = 84 × $2^1$, 336 = 84 × $2^2$ and 672 = 84 × $2^3$.

16. (4) Each number is 15 times of a prime number starting from 11 i.e. 15 × 11, 15 × 13, 15 × 17, 15 × 19, 15 × 23, 15 × 29.
    So, required answer = 15 × 29 = 435

17. (1) Boy's maternal uncle will be brother of boy's mother. Maternal uncle of mother's brother and maternal uncle of lady are brother means lady is sister of mother's brother i.e., lady is the mother of the boy. So, the boy is woman's son.

18. (4)
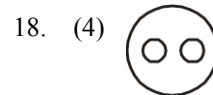
19. (2)
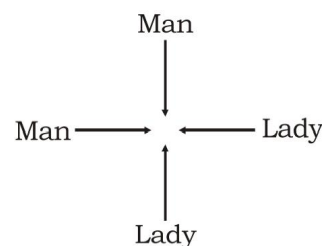
No lady is facing east means a man faces east. Persons opposite are not of same sex. So, a woman will be facing west. Again a man faces south. So, opposite to him will be a woman facing north. It means ladies are facing towards north and west direction.

20. (1) b b cc/ a/ cca a / b/a a bb/c / b bc c/a
21. (4) The word is 'GEOGRAPHY'.
22. (3) Let the daughter's age be x years.
Then, father's age = 3x years.
Mother's age = 3x − 9 years
Son's age = x + 7 years
ATQ,

$(x+7) = \dfrac{3x-9}{2}$ or $2x + 14 = 3x - 9$ or $x = 23$.

So, mother's age = 3x − 9
= 3 × 23 − 9 = 69 − 9 = 60 years.

23. (4) 

24. (3) 
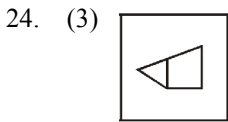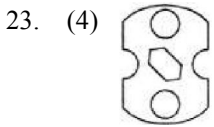
25. (4)

51. (4) $4.5 \text{ km/hr} = \left(4.5 \times \dfrac{5}{18}\right) \text{m/sec.}$

$= \dfrac{5}{4} \text{ m/sec} = 1.25 \text{ m/sec.}$

and $5.4 \text{ km/hr} = \left(5.4 \times \dfrac{5}{18}\right) \text{m/sec.}$

$= \dfrac{3}{2} \text{ m/sec.} = 1.5 \text{ m/sec.}$

Let the speed of the train be x m/sec
Then, (x − 1.25) × 8.4 = (x − 1.5) × 8.5
⇒ 8.4x − 10.5 = 8.5x − 12.75
⇒ 0.1x = 2.25
⇒ x = 22.5

∴ Speed of the train $= \left(22.5 \times \dfrac{18}{5}\right) \text{km/hr} = 81 \text{ km/hr.}$

52. (1) Cost price of 1 Banana = ₹ 3.5
selling price of 1 Banana = ₹ 4

∴ Required profit % $= \dfrac{.5}{3.5} \times 100 = 14\dfrac{2}{7}\% \text{ gain}$

53. (1) Let the average age of the whole team by x years.
∴ 11x − (26 + 29) = 9(x − 1)
⇒ 11x − 9x = 46 ⇒ 2x = 46 ⇒ x = 23
So, average age of the team is 23 years

54. (1) Let the speed of the stream x mph. Then,
Speed downstream = (10 + x) mph,
Speed upstream = (10 − x) mph

∴ $\dfrac{36}{(10-x)} - \dfrac{36}{(10+x)} = \dfrac{90}{60}$

⇒ 72x × 60 = 90(100 − x²)
⇒ x² + 48x − 100 = 0 ⇒ (x + 50) (x − 2) = 0
⇒ x = 2 mph

55. (4) L.C.M. of 252, 308 and 198 = 2772
So, A, B and C will again meet at the starting point in 2772 sec. i.e., 46 min. 12 sec.

56. (1) P = 6000
For 1sr year CI = 5% of 6000 = 300
Amount = 6000 + 300 = 6300
P for 2nd year = 6300 − 2100 = 4200
CI for 2nd year = 5% of 4200 = 210
Amount 2nd year = 4200 + 210 = 4410
P for 3rd year = 4410 − 2100 = 2310
CI for 3rd year = 5% of 2310 = 115.5
Required amount = 2310 + 115.5 = 2425.5

57. (2) ∠ ABD = BDC = x° (Alternate angles)
in ΔBDC : ∠ BDC + ∠ DCB + ∠ CBD = 180°
⇒ x° + z° + y° = 180°

⇒ $\dfrac{4}{3}y + \dfrac{8}{3}y + y° = 180°$     $\left[x = \dfrac{4}{3}y, \ y = \dfrac{3}{8}z\right]$

⇒ 5y = 180° ⇒ y = 36°

∴ $x = \dfrac{4}{3}y = 48°$ and $z = \dfrac{8}{3}y = 96°$

Now in ΔABD,
x° + 36° + ∠ BAD = 180°
⇒ ∠ BAD = 180° − 36 − 48 = 96°

58. (4) 
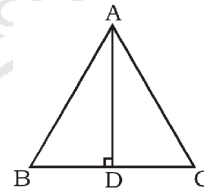
Let AD be the altitude, Base = x cm

Each equal side $= \dfrac{5x}{6}$ cm

∴ $x + 2 \times \dfrac{5x}{6} = 544 \Rightarrow \dfrac{3x + 5x}{3} = 544$

⇒ $8x = 544 \times 3 \Rightarrow x = \dfrac{544 \times 3}{8} = 204$

∴ BD = 102 cm

⇒ $AB = \dfrac{5x}{6} = \dfrac{5 \times 204}{6} = 170$ cm

and $AD = \sqrt{AB^2 - BD^2} = \sqrt{170^2 - 102^2}$

$= \sqrt{(170 + 102)(170 - 102)} = \sqrt{272 \times 68} = 136$ cm

∴ $\triangle ABC = \dfrac{1}{2} BC \times AD = \dfrac{1}{2} \times 204 \times 136 = 13872 \text{ cm}^2$

59. (4) (P + Q + R)'s 1 hour's work

$$= \left(\frac{1}{8} + \frac{1}{10} + \frac{1}{12}\right) = \frac{37}{120}$$

Work done by P, Q and R in 2 hours $= \left(\frac{37}{120} \times 2\right) = \frac{37}{60}$

Remaining work $= \left(1 - \frac{37}{60}\right) = \frac{23}{60}$

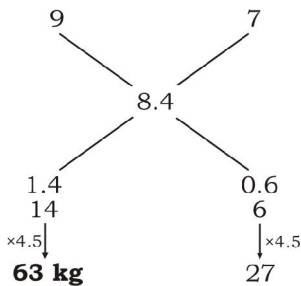(Q + R)'s 1 hour's work $= \left(\frac{1}{10} + \frac{1}{12}\right) = \frac{11}{60}$

Now, $\frac{11}{60}$ work is done by Q and R in 1 hour.

So, $\frac{23}{60}$ work will be done by Q and R in

$\left(\frac{60}{11} \times \frac{23}{60}\right) = \frac{23}{11}$ hours $\approx 2$ hours

So, the work will be finished approximately 2 hours after 11 A.M., i.e., around 1 P.M.

60. (4) Cost price of sugar = ₹ 8.4/kg

```
      9          7
         \    /
          8.4
         /    \
      1.4        0.6
      14          6
  ×4.5 ↓       ↓ ×4.5
    63 kg        27
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61. (2) $9\sqrt{x} = \sqrt{3 \times 2 \times 2} + \sqrt{3 \times 7 \times 7}$

$\Rightarrow 9\sqrt{x} = 2\sqrt{3} + 7\sqrt{3} = 9\sqrt{3}$
$\therefore x = 3$

62. (2) $\tan(2\theta + 45°) = \cot 3\theta = \tan(90° - 3\theta)$
$\Rightarrow 2\theta + 45° = 90° - 3\theta$
$\Rightarrow 5\theta = 90° - 45° = 45°$
$\Rightarrow \theta = 9°$

63. (3) Work done by the waste pipe in 1 minute

$= \frac{1}{15} - \left(\frac{1}{20} + \frac{1}{24}\right) = \left(\frac{1}{15} - \frac{11}{120}\right) = -\frac{1}{40}$

[–ve sign means emptying]

$\therefore$ Volume of $\frac{1}{40}$ part = 3 gallons.

$\therefore$ Capacity of tank = 120 $l$

64. (1) Total sale for 5 months
= ₹ (6435 + 6927 + 7230 + 6562) = ₹ 34009
$\therefore$ Required sale = ₹ [(6500 × 6) – 34009]
= ₹ (39000 – 34009) = ₹ 4991

65. (3) $x = 5 + 2\sqrt{6}$

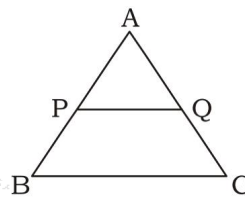$\therefore \frac{1}{x} = \frac{1}{5 + 2\sqrt{6}} = \frac{5 - 2\sqrt{6}}{(5 + 2\sqrt{6})(5 - 2\sqrt{6})}$

$= \frac{5 - 2\sqrt{6}}{25 - 24} = 5 - 2\sqrt{6}$

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

$= 5 + 2\sqrt{6} + 5 - 2\sqrt{6} + 2 = 12$

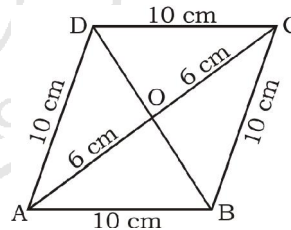$\therefore \sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{12} = 2\sqrt{3}$

66. (3)



PQ ∥ BC

$\therefore \angle APQ = \angle ABC = 60°$ and $\angle AQP = \angle ACB = 60°$

$\therefore$ Area of $\triangle APQ = \frac{\sqrt{3}}{4} \times (PQ)^2 = \frac{\sqrt{3}}{4} \times 25 = \frac{25\sqrt{3}}{4}$ cm$^2$

67. (3)



4 × side = 40 cm     [given]

$\therefore$ Side $= \frac{40}{4} = 10$ cm

In $\triangle AOB$,

$OB = \sqrt{(10)^2 - (6)^2} = \sqrt{100 - 36} = \sqrt{64} = 8$ cm

$\therefore$ Diagonal BD = 8 × 2 = 16 cm

68. (4) 1st student get 46% and failed by 55 marks
2nd student get 81% and passed by 15 more marks

$\therefore$ Total marks $= \frac{70}{35} \times 100 = 200$

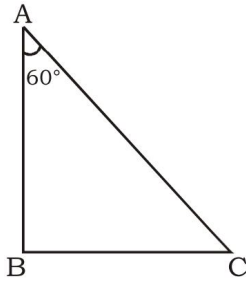69. (3) Given Exp.
$= \sec^2 A + \cos^2 A - 2 + \csc^2 A + \sin^2 A - 2 - \cot^2 A - \tan^2 A + 2$
$= (\sec^2 A - \tan^2 A) + (\cos^2 A + \sin^2 A) + (\csc^2 A - \cot^2 A) - 2$
$= 1 + 1 + 1 - 2 = 1$

70. (4)



$\angle\,B = 90°$

$\angle\,A = 60°$

$\angle\,C = 180° - 90° - 60° = 30°$

$\cos C = \dfrac{BC}{CA} \Rightarrow \cos 30° = \dfrac{BC}{CA}$

$\Rightarrow \dfrac{\sqrt{3}}{2} = \dfrac{BC}{CA} = \sqrt{3} : 2.$

71. (3) 20% of 10000 = 2000

72. (2) Service accounts for 20% i.e., $\left(\dfrac{1}{5}\right)^{th}$ of the GDP of India.

73. (3) (40 + 20 + 10)% of 30,000 = ₹ 21,000 crore

74. (4) Although the percentage on Services and Miscellaneous put together is equal for both the countries, we cannot comment on this since we have no data about the respective GDP's.

75. (1) Since the GDP is same, the answer will be got by $\dfrac{(40-20)}{20} = 100\%.$

76. (3) Replace 'that' by relative pronoun 'who', that comes for a human being i.e., 'Tendulkar'.

77. (2) 'vex' will take 'with'. 'be vexed with someone' means 'to be annoyed with someone'.

84. (2) Deceptive

88. (4) 'By fair means or foul' means 'use any method to achieve something, even if it is not honest or fair'.