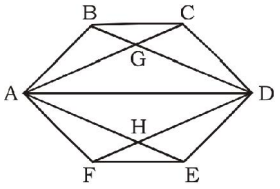
SSC CGL - 180609 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

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

1. (3) Blood flows in Vein whereas Oil flows in pipeline.
2. (2) Coach guides the Player in the same way as teacher guides the Pupil.
3. (1) '↷' symbol is moving one step forward in clockwise direction and '↶' symbol is moving one step backward in anti-clockwise direction.
4. (2) $28 \Rightarrow 28 + (2 \times 8) = 28 + 16 = 44$

   $35 \Rightarrow 35 + (3 \times 5) = 35 + 15 = 50$
5. (3) P Y X F O X Y E (−1, −1, +1, −1)
6. (3) All except bear belong to the cat family.
7. (4) All except tower are natural geographical features, while tower is a man made.
8. (1) Only in 232, a digit is repeated.
9. (1) K N M (+1, +2) J M K (+2, +1) C F D (+2, +1) G J H (+2, +1)
10. (4) B × P, A, M — I. ✓ II. ✓
11. (3) Nisha's mother's mother is man's mother i.e., Nisha's mother is man's sister (or) Nisha is man's niece.
12. (2) 1 4 2 5 3
13. (4) The pattern is + 0, + 3, + 8, + 15, ...
    We can find a difference of +3, +5 and +7 in the above mentioned pattern. So, the next difference will be 7 + 2 = 9 and the pattern will become
    + 0, + 3, + 8, + 15, +(15 + 9)
    So, missing term = 28 + (15 + 9) = 28 + 24 = 52
14. (3) The order is:
    Literary → Literature → Litter → Little → Littoral
15. (2) 25 + 20 = 45
16. (2) 5 × 1 = 5, 6 × 1 = 6, 5 + 6 =11
    6 × 4 = 24, 3 × 2 = 6, 24 + 6 = 30
    3 × 5 = 15, 4 × 3 = 12
    So, missing number = 15 + 12 = 27
17. (1) 2 × 9 + 3 × 17 = 18 + 51 = 69.
    2 × 13+ 3 × 11 = 26 + 33 = 59.
    Let the missing number in the first row be x.
    Then, 2x + 3 × 13 = 49 or 2x = 10 or x = 5
18. (4) 17 – 11 = 25 – 19 = 6.
    12 – 6 = 34 – 28 = 6.
    Let the missing number in the third column be x.
    Then, x – 8 = 19 – 11 = 8 or x = 16
19. (2) Clearly, nine days ago, it was Thursday which means today is Saturday.
20. (4) Clearly, while counting the numbers associated to the thumb will be 1,9,17,25, ...
    i.e., numbers of the form (8n + 1).
    Since, 2016 = 252 × 8 + 0
    So, 2017 shall correspond to the thumb and 2016 to the index finger.
21. (4) The figure may be markred as shown below.

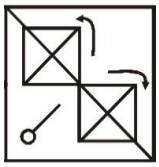


The quadrilaterals in the figure are ABCD, ABDE, ABDF, ABDH, CDHA, CDEA, CDFA, DEAG, DEFA, FAGD and AGDH.

$\therefore$ The number of quadrilaterals in the figure is 11.

22. (3) 1, 6, 8 are figures composed of straight lines as well as curve.
3, 7, 9 are closed figures shaded by oblique line segments.
2, 4, 5 are figures composed of straight lines only.

23. (3) 

24. (4) 

25. (4)

26. (4) Fred Riggs is the father of Comparative Public Administration. He is well known for his works in Comparative Public Administration specially Riggsian Model.

27. (4) Cotopaxi is an active volcano in the Andes Mountains, Ecuador, in South America. It is the second highest summit in Ecuador, reaching a height of 5,897 m (19,347 ft).

31. (2) Human Rights Day is celebrated annually across the world on 10 th December. The date was chosen to honour the United Nations General Assembly's adoption and proclamation, on 10 th December 1948, of the Universal Declaration of Human Rights (UDHR), the first global enunciation of human rights and one of the first major achievements of the new United Nations. This year the objective of the human rights day is to highlight the rights of all people, including women, minorities, persons with disabilities and marginalised people as well as to make their voices heard in decision making processes.

32. (3) India's first sunken museum will be set up at the World Heritage Site of Humayun's Tomb in New Delhi. The interactive museum will open to the public in early 2018 and will display a mix of artifacts that have been locked up in the reserve collections of the National Museum, National Archives and museums of the Archaeological Survey of India (ASI). It will focus on bringing alive the 7-centuries of pluralistic cultural traditions and architectural history of the Nizamuddin area.

34. (2) The Chhattisgarh government has taken the initiative to pass the first Food Security Act.

36. (1) Starting of his six-decade literary career as a bohemian poet and editor of Kritibas, a monthly poetry magazine, Sunil Gangopadhyay wrote his first novel, Athmo Prakash (Self-Revelation). Two of the most critically acclaimed films of legendary filmmaker Satyajit Ray - Pratidwandi and Aranyer Din Ratri - were based on novels written by him.

37. (3) National energy conservation day is celebrated every year all over the India on 14th of December.

38. (4) The temperature range of a mercury thermometer depends on its design, but the absolute limits would be from approximately -39 to +357 degrees centigrade, which are the melting and boiling points of mercury.

41. (2) Hooke's Law states that the restoring force of a spring is directly proportional to a small displacement.
$F = k.x$

42. (2) Parshvanath was the twenty third Jain Tirthankar. He was a kshatriya and son of Ashvasena, king of Banaras (Varanasi).

43. (2) Aurangzeb stopped the engraving of Kalma on coins, forbade the Parsis to celebrate their festival Navroz, released an order to ban the music everywhere and arrest those who listen to the music. He reintroduced Jizya.

44. (1) Methanol (CH_3OH) is also known as Wood Alcohol. It is a solvent in many chemical processes and is a component of automobile antifreeze.

47. (2) Tritium, ${}^{3}_{1}H$
Protons = 1
Neutrons = 3 – 1 = 2

51. (3) Let the total votes be N

$$75\% = \frac{3}{4},\ 2\% = \frac{1}{50}$$

$$N \times \left(\frac{3}{4}\right) \times \left(\frac{49}{50}\right) \times \left(\frac{3}{4}\right) = 9261$$

$$\therefore N = \frac{(21 \times 21 \times 21)}{3 \times 7 \times 753} \times 16 \times 50 = 16800$$

52. (4) Quantity of milk in the last

$$= 81\left(1 - \frac{27}{81}\right)^2 = 81\left(1 - \frac{1}{3}\right)^2$$

$$= 81 \times \frac{2}{3} \times \frac{2}{3} = 36.$$

Quantity of water in the last = 81 – 36 = 45

$$\therefore \text{ Ratio } = \frac{36}{45} = \frac{4}{5} = 4 : 5.$$

53. (2) If $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$
Here, $0.111 + 0.222 + (-0.333) = 0$
$= -3 \times 0.111 \times 0.222 \times 0.333$
$= -(0.333)^2 \times 0.222$

$\therefore$ Expression
$= [-(0.333)^2 \times 0.222 + (0.333)^2 \times 0.222]^3 = 0$

54. (2) $\angle OCX = 45°$ (ABCD is a square & AC bisects $\angle BCD$)
$\angle COD + \angle COX = 180°$
$\Rightarrow \angle COX = 180° - \angle COD = 180° - 105° = 75°$
In ΔOCX,
$\angle OCX + \angle COX + \angle OXC = 180°$
$\Rightarrow 45° + 75° + \angle OXC = 180°$
$\Rightarrow \angle OXC = 180° - 120° = 60°$
$\Rightarrow x = 60°$

55. (2) Monthly income of P & Q = ₹ 10,100
Monthly income of Q & R = ₹ 12,500
Monthly income of P & R = ₹ 10,400
Monthly income of 2(P + Q + R) = ₹ 33,000
$\therefore$ income of (P + Q + R) = ₹ 16500
$\therefore$ income of P = 16500 – 12500 = ₹ 4000

56. (4) $246 = P\left[\left(1+\frac{5}{100}\right)^2 - 1\right]$

$\Rightarrow 246 = P\left[\left(\frac{21}{20}\right)^2 - 1\right]$

$\Rightarrow 246 = P\left(\frac{441-400}{400}\right)$

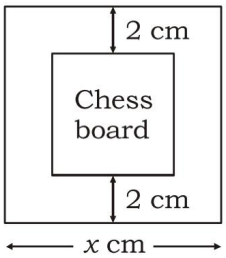
$\Rightarrow 246 = \frac{41P}{400} \Rightarrow P = \frac{246\times400}{41} = ₹2400$

$\therefore S.I. = \frac{P\times T\times R}{100} = \frac{2400\times3\times6}{100} = ₹432$

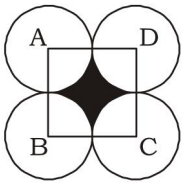
57. (1) $\frac{x}{y}+\frac{y}{x} = -2 \Rightarrow \frac{x^2+y^2}{xy} = -2$
$\Rightarrow x^2 + y^2 = -2xy$
$\Rightarrow x^2 + y^2 + 2xy = 0$
$\Rightarrow (x + y)^2 = 0$
$\Rightarrow x + y = 0$
$\Rightarrow x^3 + y^3 + 3xy(x + y) = (x + y)^3 = 0$

58. (3) Fill pipe = 4 min — 4
16 min
L + Fill = 16 min — 1
Capacity of leak pipe = 3 unit
$\therefore$ Required time $= \frac{16}{3} = 5\frac{1}{3}$ min.

59. (1) Let the length of the side of the chess board be x cm.
Then
Area of 64 equal squares = $(x - 4)^2$
$\Rightarrow (x - 4)^2 = 64 \times 6.25$
$\Rightarrow x^2 - 8x + 16 = 400$
$\Rightarrow x^2 - 8x - 384 = 0$
$\Rightarrow x^2 - 24x + 16x - 384 = 0$
$\Rightarrow (x - 24)(x + 16) = 0 \Rightarrow x = 24$ cm



Hence option (1) is true.

60. (2)


Area of the shaded region
= Area of square of side 6 cm
$- 4 \times$ area right angled sector

$= 36 - 4 \times \frac{\pi \times 3^2}{4} = 36 - 9\pi = 9(4 - \pi)$ sq. cm.

61. (4) $x : y : z$
$3\times3 : 4\times3$
$3\times4 : 4\times4$
$9 : 12 : 16$

$\therefore \frac{x+y+z}{3z} = \frac{9+12+16}{3\times16} = \frac{37}{48}$.

62. (1) Required time $= \frac{x}{(y-x)} \times t = \frac{40}{(50-40)} \times \frac{1}{2} = 2$ hrs.

63. (3) Here interior angle – exterior angle = 60°

$\frac{(n-2)\times180}{n} - \frac{360}{n} = 60$

$\Rightarrow \frac{1}{n}[(n-2)\times180 - 360] = 60$

$\Rightarrow \frac{1}{n}[180n - 360 - 360] = 60$

$\Rightarrow \frac{1}{n}[180n - 720] = 60$

$\Rightarrow 180n - 720 = 60n \Rightarrow 120n = 720$

$\therefore n = \frac{720}{120} = 6$

64. (3) $23\% = \frac{23}{100}$

Before	After
100	77
$\times20$ ↓	$\times20$ ↓
2000	1540

65. (3) $\frac{T_3 - T_5}{T_1} = \frac{\sin^3\theta + \cos^3\theta - (\sin^5\theta + \cos^5\theta)}{\sin\theta + \cos\theta}$

$= \frac{(\sin^3\theta - \sin^5\theta) + (\cos^3\theta - \cos^5\theta)}{\sin\theta + \cos\theta}$

$= \frac{\sin^3\theta(1 - \sin^2\theta) + \cos^3\theta(1 - \cos^2\theta)}{\sin\theta + \cos\theta}$

$= \frac{\sin^3\theta \cdot \cos^2\theta + \cos^3\theta \cdot \sin^2\theta}{\sin\theta + \cos\theta}$

$= \frac{\sin^2\theta \cdot \cos^2\theta(\sin\theta + \cos\theta)}{(\sin\theta + \cos\theta)} = \sin^2\theta \cdot \cos^2\theta$

66. (4) No. of appear students No. of passed students

A → 100 70

B → 120 105

$\therefore$ Required % $= \frac{105}{120} \times 100 = 87.5\%$

67. (1) $\sin^2 30° \cos^2 45° + 5\tan^2 30° + \frac{3}{2}\sin^2 90° - 3\cos^2 90°$

$= \left(\frac{1}{2}\right)^2 \times \left(\frac{1}{\sqrt{2}}\right)^2 + 5 \times \left(\frac{1}{\sqrt{3}}\right)^2 + \frac{3}{2} \times 1 - 3 \times 0$

$= \frac{1}{4} \times \frac{1}{2} + 5 \times \frac{1}{3} + \frac{3}{2}$

$= \frac{1}{8} + \frac{5}{3} + \frac{3}{2} = \frac{3 + 40 + 36}{24} = \frac{79}{24} = 3\frac{7}{24}$

68. (4) Let the radius of bigger and smaller cylinder be r_1 and r_2 respectively.

$2\pi h(r_1 - r_2) = 44$ ...(i)

$\pi h(r_1^2 - r_2^2) = 99;\ r_1 = ?$

From equation (i)

$r_1 - r_2 = \frac{44}{2\pi h} = \frac{44}{2 \times \frac{22}{7} \times 14} = \frac{1}{2}$

Also, $\frac{22}{7} \times 14(r_1 + r_2)(r_1 - r_2) = 99$

$\Rightarrow 44(r_1 + r_2)\frac{1}{2} = 99 \Rightarrow r_1 + r_2 = \frac{99}{22} = \frac{9}{2}$

We have, $r_1 + r_2 = \frac{9}{2}$

$r_1 - r_2 = \frac{1}{2}$

$2r_1 = 10 \Rightarrow r_1 = 5$

69. (4) Volume of prism = Area of base × height

$\Rightarrow 366 = \frac{1}{2} \times 4 \times 28 \times h \Rightarrow h = \frac{366}{56} = 6.53$ cm

70. (1) A – 5 ——— 7

35

B – 7 ——— 5

Total work in 1 cycle = 12 units in 2 days

$\therefore$ total time taken by A and B = $5\frac{4}{5}$ days

71. (3) Shampoos $= \left(\frac{12.21 - 7.88}{7.88} \times 100\right)\% = 54.95\% \approx 55\%$

72. (3)

73. (2) Percentage $= \left(\frac{(47.17 - 37.76)}{37.76} \times 100\right)\% = 27.57\%$

74. (4) Percentage $= \left(\frac{(7.88 - 5.01)}{7.88} \times 100\right)\% = 36.42\%$

75. (1) Required ratio will be = $= \frac{37.16}{14.97} = 2.5 = \frac{5}{2} = 5 : 2.$

76. (2) This is an example of conditional sentences. When two actions take place one after the other in future and the second depends on the first action, the first action is in simple present tense and the second is in simple future tense. Thus, it should be 'When he meets him .....'.

77. (3) Add 'the' before 'habit'. A part of a sentence containing Noun + of + Noun takes 'the' before the first noun.

78. (3) Replace 'as well' by 'also', since 'not only .... but also' is a co-relative conjunction.

79. (4) 'Knock somebody down' means 'to hit somebody and make them fall on the ground'.

80. (2) 'Fell' means 'to make somebody/ something fall to the ground'.

87. (3) This sentence is an example of present tense. Thus, it will take 'have'.

89. (4) 'count on somebody' means 'to trust somebody'.

90. (2) Writing ten letters is not a continuing activity. Thus, it should follow present perfect tense form.