SSC CGL - GRAND TEST - CGL 170204
HINTS AND SOLUTIONS

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

1. (4) T O N F → A J L R
   −5, −4, −3, −2

   Similarly,

   U T S N → I O Q S
   −5, −4, −3, −2

2. (3) 8 – 3 = 5; 5 – 1 = 4
   6 – 5 =1; 1 – 1 = 0
   Alternatively, 8 × 3 = 24 : Its unit's digit is 4.
   6 × 5 = 30 : Its unit's digit is 0.

3. (3)
4. (2) Paralysis is a loss of feeling in or control of all or part of the body, caused by a disease of or an injury to the nerves. Madness refers to the state of being mentally ill.
5. (3) Reasoning is the action or process of using one's ability to think, form opinions. Reasoning is a mental exercise. Cane (Verb) means to punish by beating with a cane performed physically.
6. (3) $68-25=43$, $71-28=43$, $51-32=19$ Odd numbers

   59 – 43 = 16 : Even number
7. (4) Director is different from the other three words.
8. (1) $K \xrightarrow{+3} N \xrightarrow{-1} M$

   $J \xrightarrow{+3} M \xrightarrow{-2} K$

   $C \xrightarrow{+3} F \xrightarrow{-2} D$

   $G \xrightarrow{+3} J \xrightarrow{-2} H$
9. (1) Goa is a State of Union of India. All others are capital cities of States.
   Rajasthan — Jaipur
   Tamil Nadu — Chennai
   Mizoram — Aizawal
10. (4) $A \xrightarrow{+2} C \xrightarrow{+3} F \xrightarrow{+4} [J] \xrightarrow{+5} O$

    $B \xrightarrow{+3} E \xrightarrow{+4} I \xrightarrow{+5} [N] \xrightarrow{+6} T$

    $C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{+2} [I] \xrightarrow{+2} K$
11. (3) a [b] ca/ [a] bca/a [b] b [c] /a [a] bb/c [c]
12. (3) ab [c] a/bb [c] a/ [c] b [c] a/db [c] a
13. (2) First Column 5 – 4 = 1 and $(1)^3 = 1$
    Second Column 7 – 3 = 4 and $(4)^3 = 64$
    Third Column 8 – 2 = 6 and $(6)^3 =$ [216]
14. (4) There is no 'U' letter in the given word.
15. (2) 2 * 6 → 3 2 (÷2)

    7 * 4 → 2 7 (÷2)

    Therefore,

    7 * 6 → 3 7 (÷2)

16. (1) $(1 \times 5) + (2 \times 3) \Rightarrow 5 + 6 = 11$
$(2 \times 2) + (3 \times 2) \Rightarrow 4 + 6 = 10$
Therefore, $(4 \times 2) + (3 \times 6) \Rightarrow 8 + 18 = 26$.

17. (4)

P	U	N	C	T	U	A	T	I	O	N
+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Q	V	O	D	U	V	B	U	J	P	O

S	I	N	G
+1	+1	+1	+1
T	J	O	H

Therefore,

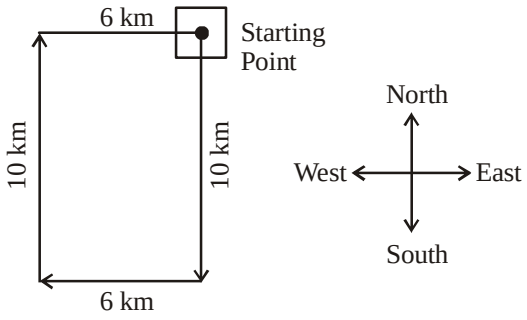
P	A	R	L	I	A	M	E	N	T
+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Q	B	S	M	J	B	N	F	O	U

18. (2) $6 \times 2 = 12 \Rightarrow 21$
$21 \times 2 = 42 \Rightarrow 24$
$24 \times 2 = 48 \Rightarrow 84$
$84 \times 2 = 168 \Rightarrow 861$
$861 \times 2 = 1722 \Rightarrow 2271$
$2271 \times 2 = 4542 \Rightarrow$ **2454**
$2454 \times 2 = 4908 \Rightarrow 8094$

19. (3) $926 - 818 = 108; \frac{108}{4} = 27$

$703 - 639 = 64; \frac{64}{4} = 16$

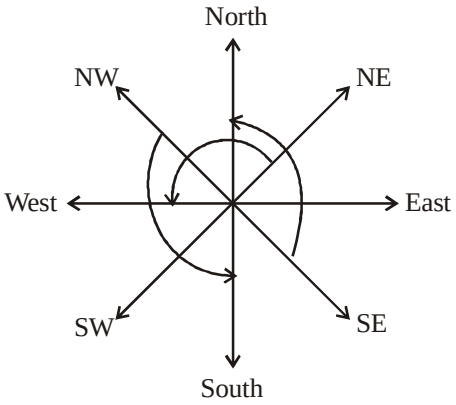
20. (4)



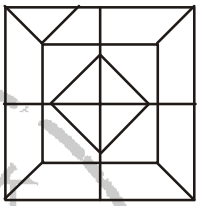
21. (1) Obviously both the Conclusions follow. Food problem arises due to rapid increase in population.

22. (3) $(10)^2 \geq 10 \times 10$
$\Rightarrow 100 = 100$

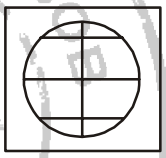
23. (4)



24. (2)



25. (4)



51. (2) If the numbers be 3x and 4x, then HCF = x = 5
$\therefore$ Numbers= 15 and 20
$\therefore$ LCM = 60

52. (1) $\tan 89° = \tan (90° - 1°) = \cot 1°$
$\tan 88° = \tan (90° - 2°) = \cot 2°$
$\therefore \tan 1°.\tan 2°.\tan 3° ..... \tan 45° ..... \tan 87°.\tan 88°.\tan 89° = (\tan 1°.\cot 1°)(\tan 2°.\cot 2°) ..... \tan 45° = 1$
$(\tan \theta . \cot \theta = 1)$

53. (2) S.P. of 250 chairs – C.P. of 250 chairs
= S.P. of 50 chairs
$\Rightarrow$ S.P. of 200 chairs = C.P. of 250 chairs

$\therefore$ Percentage profit $= \frac{250 - 200}{200} \times 100 = 25\%$

54. (3) Radius of cylinder = r units and height = r units

$\therefore$ Required ratio $= 2\pi r^2 + 2\pi r^2 : 2\pi r^2 + \pi r^2 = 4 : 3$

55. (2) Lowest score = x, Highest score = x + 100
$\therefore 28 \times 38 + x + x + 100 = 30 \times 40$
$\Rightarrow 1064 + 2x + 100 = 1200 \Rightarrow 2x = 2000 - 1164 = 36$
$\therefore x = 18.$

56. (1) If C.P. of article be Rs. x, then

$$x \times \frac{116}{100} + 200 = \frac{x \times 120}{100}$$

$$\Rightarrow x \times \frac{4}{100} = 200 \Rightarrow x = \frac{200 \times 100}{4} = ₹5000$$

57. (2) Volume of sphere

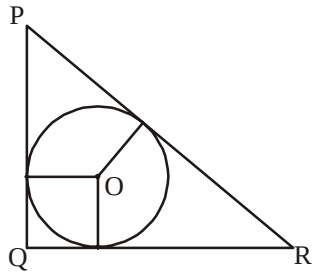
$= \frac{4}{3}\pi r^3 = \frac{4}{3}\pi \times 9 \times 9 \times 9 = 972\ \pi$ cubic cm.

If the length of wire be h cm., then

$\pi \times (0.2)^2 \times h = 972\pi$

$\Rightarrow h = \frac{972}{0.2 \times 0.2} = 24300$ cm $= 243$ metres

58. (4)



$PR^2 = PQ^2 + QR^2 = 3^2 + 4^2 = 25$

$\therefore PR = \sqrt{25} = 5$ cm

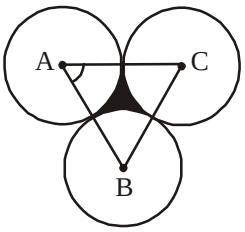
$r = \frac{\text{Area of triangle}}{\text{Semi} - \text{perimeter of triangle}} = \frac{\frac{1}{2} \times 3 \times 4}{\frac{3+4+5}{2}} = \frac{6}{6} = 1$ cm

59. (1) Volume of water flowing from the pipe in 1 minute
$= \pi \times 0.25 \times 0.25 \times 1000$ cu. cm.
Volume of conical vessel

$= \frac{1}{3}\pi \times 15 \times 15 \times 24$ cu. cm.

$\therefore$ Required time $= \frac{\pi \times 15 \times 15 \times 24}{3\pi \times 0.25 \times 0.25 \times 1000}$
$= 28$ minutes 48 seconds

60. (4)



AB = BC = CA = 2 a cm.
$\angle BAC = \angle ACB = \angle ABC = 60°$
Area of ΔABC

$= \frac{\sqrt{3}}{4} \times (\text{side})^2 = \frac{\sqrt{3}}{4} \times 4a^2 = \sqrt{3}a^2$ sq.cm.

Area of three sectors $= 3 \times \frac{60}{360} \times \pi \times a^2 = \frac{\pi a^2}{2}$ sq. cm.

Area of the shaded region

$= \sqrt{3}a^2 - \frac{\pi}{2}a^2 = \left(\frac{2\sqrt{3} - \pi}{2}\right)a^2$ sq. cm.

61. (2) $x + y + z = a - b + b - c + c - a = 0$
$\therefore x^3 + y^3 + z^3 - 3xyz = 0$

62. (2) If the height of the godown be h metre, then
$2\ (15 \times 12) = 2 \times h(15 + 12)$
$\Rightarrow 27h = 15 \times 12$

$\Rightarrow h = \frac{15 \times 12}{27} = \frac{20}{3}$ metre

$\therefore$ Volume of the godown $= \frac{15 \times 12 \times 20}{3} = 1200$ cu. m.

63. (3) $\sqrt{19.36} + \sqrt{0.1936} + \sqrt{0.001936} + \sqrt{0.00001936}$
$= 4.4 + 0.44 + 0.044 + 0.0044 = 4.8884$

64. (3) C.P. of the article = Rs. 100 and market price = Rs. x

$\therefore x \times \frac{90}{100} = 117 \Rightarrow x = \frac{117 \times 100}{90} = 130 = 30\%$ above C.P.

65. (2) Number of brown socks = x
Price of brown socks = Rs. y per pair
Price of black socks = Rs. 2y per pair

$\therefore 4y + x \times 2y = \frac{150}{100}(4 \times 2y + xy)$

$\Rightarrow 4 + 2x = \frac{3}{2}(8 + x) \Rightarrow 8 + 4x = 24 + 3x$

$\therefore x = 24 - 8 = 16$
$\therefore$ Required ratio = 4 : 16 = 1 : 4

66. (3) $(x + y)^2 = 4xy$
$\Rightarrow x^2 + y^2 + 2xy - 4xy = 0$
$\Rightarrow (x - y)^2 = 0 \Rightarrow x = y$

67. (1) $4\tan^2\theta + 9\cot^2\theta = (2\tan\theta - 3\cot\theta)^2 + 12$

$\therefore$ Minimum value = 12 because $(2\tan\theta - 3\cot\theta)^2 \geq 0$

68. (2) $\frac{P - Q}{2} = (P + Q) \times \frac{30}{100}$

$\Rightarrow 5(P - Q) = (P + Q) \times 3$
$\Rightarrow 5P - 3P = 5Q + 3Q \Rightarrow 2P = 8Q$

$\Rightarrow P = 4Q = 4 \times \frac{P \times x}{100} \Rightarrow \frac{4x}{100} = 1 \Rightarrow x = 25$

69. (3) $\text{cosec}\theta - \cot\theta = \frac{7}{2}$ ...(i)

$\text{cosec}^2\theta - \cot^2\theta = 1$
$\Rightarrow (\text{cosec}\theta + \cot\theta)(\text{cosec}\theta - \cot\theta) = 1$

$\Rightarrow \text{cosec}\theta + \cot\theta = \frac{1}{\text{cosec}\theta - \cot\theta} = \frac{2}{7}$ ...(ii)

On additon both equations,

$2\,\text{cosec}\theta = \frac{7}{2} + \frac{2}{7} = \frac{49 + 4}{14} = \frac{53}{14}$

$\Rightarrow \text{cosec}\theta = \frac{53}{28}$

70. (4) $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} = \frac{(\sqrt{3}-\sqrt{2})(\sqrt{3}-\sqrt{2})}{(\sqrt{3}+\sqrt{2})(\sqrt{3}+\sqrt{2})}$

$= \frac{(\sqrt{3}-\sqrt{2})^2}{3-2} = 3+2-2\sqrt{3}.\sqrt{2} = 5-2\sqrt{6}$

$\therefore y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} = 5+2\sqrt{6}$

$\therefore x+y = 5-2\sqrt{6}+5+2\sqrt{6} = 10$

$xy = (5-2\sqrt{6})(5+2\sqrt{6}) = 25-24 = 1$

$\therefore x^3+y^3 = (x+y)^3 - 3xy(x+y) = (10)^3 - 3(10)$

$= 1000 - 30 = 970.$

71. (2) $\frac{\Delta ABC}{\Delta DEF} = \frac{AB^2}{DE^2} \Rightarrow \frac{20}{45} = \frac{25}{DE^2}$

$\Rightarrow DE^2 = \frac{45\times 25}{20} = \frac{225}{4}$

$\therefore DE = \frac{15}{2} = 7.5 \text{ cm}$

72. (3) Per cent increase = $\frac{380-320}{320}\times 100 = 18.75$

73. (2) Total production :
Wheat $\Rightarrow$ 3700 million tonnes
Rice $\Rightarrow$ 2000 million tonnes
Barley $\Rightarrow$ 1800 million tonnes
Other cereasl $\Rightarrow$ 2400 million tonnes

$\therefore x = \frac{3700}{9900}\times 100 = 37.4$

74. (1) Percentage increase : Rice = $\frac{160}{400}\times 100 = 40$

Cereals = $\frac{190}{500}\times 100 = 38$

75. (4) Required difference = $\frac{2000}{5} - \frac{1800}{5} = 400 - 360 = 40$ million tonnes.

81. (3) **Arrogant (Adjective) =** behaving in a proud, unpleasant way; showing little thouught for other people.
Modest (Adjective) = not talking much about your own abilities or possessions.
Look at the sentences :
Arrogant persons seldom get respect in society. He is very modest about his success.

82. (3) **Resurgence (Noun) =** the retrn and growth of an activity that had stopped.
Look at the sentence :
The resurgence of old historical ssites is praise-worthy.

83. (3) **Damp (Adjective) =** slightly wet
Look at the sentence :
Wipe the surface with a damp cloth.

84. (4) **Impart (to) =** to pass information, knowledge etc. to other people; convey; lend
Look at the sentence :
This spice imparts an Eastern flavour to the dish.

85. (2) **comprises =** consists of

86. (1) **Reversal (Noun) =** opposite of what it was
Look at the sentence :
The government suffered a total reversal of fortune(s) last year.

88. (2) Here, Past Perfect i.e. We had finished our work ... should be used. The sentence shows past time.

90. (3) It is not related to a particular whale. Hence Blue whales (plural) were ..... should be used here.

91. (3) The sentence shows past time as 'ago' has been used.

92. (1) **Keep/ stay/ steer clear =** to avoid a person or thing because it may cause problems.

93. (3) **At the altar =** because of something that you think is worth suffering for. Hence, before the altar ..... should be used here.

94. (2) **At loggerheads =** in strong diagreement.
Look at the sentence :
The two governments are still at loggerheads over the island.

95. (4) **Under the weather =** If you are or feel **under the weather,** you feel slightly ill/ sick and not as well as usual.

96. (2) **Keep a level head =** to remain calm and sensible in a difficult situation.

97. (1) **Resurgence** (= the return and growth of an activity that had stopped), commissioned, hap-hazard (= without order), Fortuitous (= happening by chance).