## SSC CGL (Tier I ) -2022 - HINTS \& SOLUTIONS

## ANSWER KEY

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

## HINTS \& SOLUTIONS

1.(2) Pythagorean triplets
( $9,12,15$ )
2.(4)


In reverse order
(-1) pattern follow
3.(3)
a $\underline{e} c d \underline{d} / \mathrm{ae} \underline{c} d \underline{\rho} / \mathrm{a} \underline{\mathrm{e}} \mathrm{c} \underline{\mathrm{d}}$ o
eocoed
4.(4) except (d), all are divisible by 7
5.(1)
6.(2)

I. $\checkmark$
II. $\times$
III. $\times$
7.(2)

8.(3)
9.(4)

| F | L | O | W | E | R | R | 0 | S | E |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ |
| 8 | 2 | 1 | 5 | 9 | 3 | 3 | 1 | 7 | 9 |


| S | 0 | R | R | Y |
| :--- | :--- | :--- | :--- | :--- |
| $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ | $\downarrow$ |
| 7 | 1 | 3 | 3 | 4 |

In the same way
$5 \times(5+2): 5$
$35: 5$
$=15+5 \div 10 \times 6-12$
$=15+1 / 2 \times 6-12$
$=18-12$
$=6$
12.(3)
13.(4)
14.(1)
15.(1)
16.(3)

Let no. of man in starting $=m$
$15 \times m=20 \times(\mathrm{m}-8)$
$15 \mathrm{~m}=20 \mathrm{~m}-160$
$5 \mathrm{~m}=160$
$M=32$
17.(2)
18.(3)
19.(4)

Except (c), all options individually follow same pattern.
$(5,(5+8) \times 3,8)$
$(5,39,8)$
Same as
$(6,(6+4) \times 3,4)$
$(6,30,4)$

22.(2)
23.(3)
24.(3)
25.(4)
26.(2)

Capitals.
(+2) pattern follow.
Except (d), all are fruits
Brahmadeya was tax free land gift either in form of single plot or whole villages donated to Brahmans in the Chola period
27.(1) The Vakataka Empire was a dynasty from the Indian subcontinent that originated from the Deccan in the mid-3rd century CE. Their state is believed to have extended from the southern edges of Malwa and Gujarat in the north to the Tungabhadra River in the south. Vindhya Shakti was the founder of Vakatak dynasty.
28.(4) Emperor Shah Jahan commissioned construction of the Red Fort on 12 May 1639, when he decided to shift his capital from Agra to Delhi and its design is credited to architect Ustad Ahmad Lahauri, who also constructed the TajMahal.
29.(4) Benjamin Disraeli is a British statesman and novelist who was twice prime minister of British. Disraelli admitted the Revolt of 1857 as a national revolt.
30.(1) Eravikulam National Park is situated in the state of Kerala. The government of Kerala resumed control in 1971 (KannanDevan Hill Produce (Resumption of lands) Act, 1971), and declared the Eravikulam-Rajamala Wildlife Sanctuary in 1975 to protect the habitat of the endangered Nilgiritahr. It became a National Park in 1978.
31.(3) Norwesters or the Kalbaishakhi is a local rain fall and thunder storm which occurs in India and Bangladesh. Kalbaishakhi occurs, with increasing frequency, from March till monsoon establishes over North-East India.
32.(2) Chota Nagpur Plateau region is rich in natural resources, with fertile land and adequate water. It is known as the mineral heartland of India.
33.(1) The Alps are the highest and most extensive mountain range system that lies entirely in Europe, stretching approximately 1,200 kilometres across eight Alpine countries: France, Switzerland, Italy, Monaco, Liechtenstein, Austria, Germany, and Slovenia.
34.(1) Article 345-Official language or languages of a State Subject to the provisions of Article 346 and 347, the Legislature of a State may by law adopt any one or more of the languages in use in the State or Hindi as the language or languages to be used for all or any of the official purposes of that State.
35.(2) National Disaster Management Authority has been constituted with the Prime Minister of India as its Chairman, a Vice Chairman with the status of Cabinet Minister, and eight members with the status of Ministers of State.
36.(3) Fiscal policy in India is formulated by Ministry of Finance.
37.(4) The Index of Industrial Production (IIP) is an index for India which details out the growth of various sectors in an economy such as mineral mining, electricity and manufacturing. The Eight Core Industries comprise nearly $40.27 \%$ of the weight of items included in the Index of Industrial Production (IIP).
38.(4) To hear a clear echo, the minimum distance should be 16.5 metre.
39.(3) According to Lenz law, the polarity of the induced emf is such that it opposes the change in magnetic flux responsible for its production.
40.(2) The Pauli Exclusion Principle states that, in an atom or molecule, no two electrons can have the same four electronic quantum numbers. As an orbital can contain a maximum of only two electrons, the two electrons must have opposing spins.
41.(4) Osmium is a chemical element with symbol (Os) and atomic number 76 it has maximum density
42.(3) Anemophily or wind pollination is a form of pollination whereby pollen is distributed by wind.
43.(4) Leishmaniasis is caused by a protozoa parasite from over 20 Leishmania species. Over 90 sandfly species are known to transmit Leishmania parasites. Visceral leishmaniasis (VL), also known as kala-azar is fatal if left untreated in over 95\% of cases.
44.(2) The water-soluble vitamins are B and C. The B vitamins include thiamin, riboflavin, niacin, folate, pyridoxine, and B12. The water-soluble vitamins are easily dissolved and can be excreted in the urine.
45.(2) The 9-day humanitarian assistance and disaster relief (HADR) exercise code-named 'Tiger Triumph' has been started between armed forces of India and United States on the Eastern seaboard (at Visakhapatnam and Kakinada in Andhra Pradesh).

Total student $=25$

$$
\frac{(2 x)^{3}-(\sqrt{3} y)^{3}}{2 x-\sqrt{3} y}=A x^{2}+B x y+C y^{2}
$$

$$
4 \mathrm{x}^{2}+3 \mathrm{y}^{2}+2 \sqrt{3} \mathrm{xy}=A x^{2}+B x y+C y^{2}
$$

Compare on both side
$\mathrm{A}=4, \quad \mathrm{~B}=2 \sqrt{3}, \quad \mathrm{C}=3$
$=3 \times 4-5 \sqrt{3} \times 2 \sqrt{3}+4 \times 3$
$=12-30+12$
$=-6$
53.(4)
$x^{4}-1=12 x^{2}$
$x^{2}-\frac{1}{x^{2}}=12$
$x^{6}-\frac{1}{x^{6}}-3(12)=12^{3}$
$x^{6}-\frac{1}{x^{6}}-36=1728$
$x^{6}-\frac{1}{x^{6}}=1764$
to find $\left(x^{6}-\frac{1}{x^{6}}\right)-7\left(x^{2}-\frac{1}{x^{2}}\right)+9$
$=1764-7 \times 12+9$
$=1773-84 \Rightarrow 1689$
54.(1)

| Cost price | $:$ | mark price |
| :--- | :--- | :--- |
| $100-25 \%$ |  | $100+20 \%$ |
| 75 |  | 120 |

Now $25 \%$ discount $=120-120 \times \frac{25}{100}$
= $120-30$
$=90$
Profit $=\frac{15}{75} \times 100$
$=20 \%$
55.(1)

$$
\begin{aligned}
& =\frac{\sin x-\operatorname{cosec} x+\cot x}{\left(\frac{1}{\sin x}-\frac{\cos x}{\sin x}\right) \sin x} \\
& =\frac{\sin x-\frac{1}{\sin x}+\frac{\cos x}{\sin x}}{1-\cos x} \\
& =\frac{\frac{\left(\sin ^{2} x-1\right)+\cos x}{\sin x}}{(1-\cos x)} \\
& =\frac{-\cos ^{2} x+\cos x}{\sin x(1-\cos x)} \\
& =\frac{\cos x}{\sin x} \\
& =\cot x
\end{aligned}
$$

Number is divisible by 88 So it is also
divisible by 8 and 11 . If no. is divisible by 8
then $\frac{6 y 4}{8}$ also divisible
$y=6$ (for max value)
and if no. divisible by 11 then
$=\frac{9-x}{11}$
So $\mathrm{x}=$
So $x=9$
$(x+y)=9+6$
$\begin{aligned}(x+y) & =9+6 \\ & =15\end{aligned}$
Put $\theta=30^{\circ}$
$=(\sqrt{3})^{2}-3 \times 2+3$
$=3-6+3$
$=0$
Find $\rightarrow \sec (15+\theta)+\tan \theta$
$=\sec 45+\tan 30$
$=\sqrt{2}+\frac{1}{\sqrt{3}}$
$=\frac{\sqrt{6}+1}{\sqrt{3}}$
$=\frac{\sqrt{18}+\sqrt{3}}{3}$
58.(4)

Rs. 300 is the $2.5 \%$ of Rs. 12000


$$
\begin{aligned}
& 12 \rightarrow 12000 \\
& 5 \rightarrow 5000
\end{aligned}
$$



Present age
5 years from now

$$
0: 32
$$

$$
5: 8
$$

60.(2)


PA and SA are tangent
So $\quad \mathrm{PA}=\mathrm{SA}$
SA $=5$
DS $=11-5$
$=6$
$R C=8$
DC $=6+8$
$=14 \mathrm{~cm}$.
61.(4)
$\frac{a+b}{2}+c=155$
= Same as more two
= add all of them
$(a+b+c)+(a+b+c)=378$
$a+b+c=189$
average $=\frac{189}{3}$

$$
=63
$$

62.(3)


$$
\begin{aligned}
\angle \mathrm{BOC} & =90-\frac{\angle A}{2} \\
& =90-39 \\
& =51^{\circ}
\end{aligned}
$$

63.(3)
ratio of area $=\left(\frac{d_{1}}{d_{2}}\right)^{c}=\left(\frac{7}{5}\right)^{c}=49: 25$
$h=\frac{\sqrt{ } 3}{2} a=$ (sum of perpendicular)

$$
\frac{\sqrt{3}}{2} a=16 \sqrt{3}
$$

$$
a=32
$$

Perimeter $=32 \times 3=96 \mathrm{~cm}$.
Difference between English and Chemistry = Difference
between English and mathematics
$150 / 360 \times 810=337.5$
$180 / 360 \times 810=405$
Difference $=67.5$
68.(2)

Hindi $=\frac{70}{360} \times 810=157.5$
69.(4) $\mathrm{E}+\mathrm{H}+\mathrm{SS}=180^{\circ}$
$\mathrm{M}+\mathrm{C}=180^{\circ}$
Difference $=0$

71.(2)

When speed is $45 \mathrm{~km} / \mathrm{h}$, then late by 15 min
Actual time $=66-15$
$=51 \mathrm{~min}$
Let the cost price $=100$

$$
\begin{aligned}
& \Rightarrow \frac{85 \times 30}{100}=25.5 \\
& \quad=85+25.5=110.5 \\
& \Rightarrow 120-110.5 \\
& \quad=9.5 \rightarrow 95 \\
& \quad=100 \rightarrow 1000
\end{aligned}
$$

72.(1)

$$
\begin{aligned}
\sin 2 \theta & =\frac{2 \tan \theta}{1+\tan ^{2} \theta} \\
& \theta=15 \\
& =\sin 30=\frac{1}{2}
\end{aligned}
$$

73.(3)


Radius of semi circle $=a$ units
$\therefore$ Area of semi circle $=\frac{\pi a^{2}}{2}$ sq. units.
Both triangles $\triangle \mathrm{ABC}$ and $\triangle \mathrm{BCD}$ are isosceles and equal.
$\therefore$ Area of each triangle $=\frac{1}{2} a^{2}$
$\therefore$ Area of both triangles $=2 \times \frac{1}{2} a^{2}=a^{2}$ sq. units
$\therefore$ Area of shaded region $=\frac{\pi a^{2}}{2}-a^{2}=a^{2}\left(\frac{\pi}{2}-1\right)$ sq. units
74.(1)


Sum $\Rightarrow$ Rs. 1 - Rs. 1
Sum $\Rightarrow$ Rs. 400
75.(4)
$=\sqrt{-\sqrt{3}}+\sqrt{3+8 \sqrt{4+3+2 \times 2 \times \sqrt{3}}}$
$=\sqrt{-\sqrt{3}+\sqrt{3+8 \sqrt{(2+\sqrt{3})^{2}}}}$
$=\sqrt{-\sqrt{3}+\sqrt{3+16+8 \sqrt{3}}}$
$=\sqrt{-\sqrt{3}+\sqrt{(4)^{2}+(\sqrt{3})^{2}+4 \times \sqrt{3} \times 2}}$
$=\sqrt{-\sqrt{3}+4+\sqrt{3}}$
$=\sqrt{4}$
$=2$
76.(4) 'CBAD' is the correct sequence.
77.(1) Replace ' 2,000 Billion Cubic Meter' with ' 2,000 Billion Cubic Meters'. Numerical Adjective '2,000 Billion' is plural hence it takes the unit in plural after it.
78.(3) 'Dessicate' is wrongly spelt.

Correct spellings with their respective meanings are as follows:
Desiccate: remove the moisture from (something); cause
to become completely dry.
Dragoon: coerce (someone) into doing something. Dispossess: deprive (someone) of land, property, or other possessions.
Dyspepsia: indigestion.
Hale and Hearty (idiom): healthy and vigorous.
Rosary: a string of beads that members of certain religions, especially Catholics, use for counting prayers. Quarry: a place, typically a large, deep pit, from which stone or other materials are or have been extracted. Amateur: a person who engages in a pursuit, especially a sport, on an unpaid rather than a professional basis. Replace 'cheaper' with 'cheap'.
After comparatively/relatively, positive degree of adjective is used
'Superlative degree of adjectives' + 'that' is the right usage. Also modals take 'base form of verb' viz. could + happen. Hence option C is the correct choice.
83.(4) Suspect: a person thought to be guilty of a crime or offence.
Object: a material thing that can be seen and touched. Sect: a group of people with somewhat different religious beliefs.
Prospect: the possibility or likelihood of some future event occurring.
Hence option D fits in the context.
Appurtenance: an accessory or other item associated with a particular activity or style of living.
Subtraction: the process of taking one number or amount away from another number or amount. Hence 'Appurtenance' and 'Subtraction' are antonyms to each other.
85.(1) Brawn: physical strength and big muscles.

Muscularity: possessing muscular strength.
Fragility: the quality of being easily broken or damaged.
Fraternity: a group of people sharing a common profession or interests.
Maternity: motherhood.
Hence Brawn and Muscularity are synonyms to each other.
Elixir: a magical or medicinal potion.
Ambit: the range or limits of the influence of something. Utopia: an imagined place or state of things in which everything is perfect.
Hence option B is the correct choice.
Leer: look or gaze in a lascivious or unpleasant way. Smear: damage the reputation of (someone) by false accusations; slander.
Jeer: make rude and mocking remarks.
Adhere: believe in and follow the practices of.
Uphold: confirm or support (something which has been questioned).
Perfect Tense requires 'Has + Past Participle form of verb'.
Hence 'upheld' is the correct choice.
Infuse means fill or pervade \& takes preposition 'with' after it.
90.(3) Vile: extremely unpleasant.

Vale: a valley.
Veil: something that prevents you from knowing what is happening.
Venial: (of a fault or offence) slight and pardonable.
91.(2) Candor: the quality of being open and honest; frankness. Evasiveness: deliberate vagueness or ambiguity.
Sincerity: the quality or state of being sincere; honesty, genuineness.
Inequity: lack of fairness or justice.
Deception: the action of deceiving someone.
Hence Candor and Sincerity are synonyms to each other.
92.(2) Active: Subject + has/have/had + to + V1 + Object.

Passive: Object + has/have/had + to + be + V3 + by subject.
'BACD' is the correct sequence.
96.(4) Do wonders (idiom): to produce excellent results or be extremely effective, especially unexpectedly.
97.(3) Despite: without being affected by; in spite of. Despite doesn't take 'of' with it. Also 'all the ups and downs' is the correct phrase.
98.(2) Infuse: fill; pervade.

Imperil: put at risk of being harmed, injured, or destroyed.
Stir: move or cause to move slightly.
99.(1) Discretion: the quality of behaving or speaking in such a way as to avoid causing offence or revealing confidential information.
Imprudence: a lack of caution in practical affairs.
Hence Discretion and Imprudence are antonyms to each other.
100.(2) Simian: relating to or affecting apes or monkeys.

Spartan: showing or characterized by austerity or a lack
of comfort or luxury.
Truant: a pupil who stays away from school without
leave or explanation.

