QUANTITATIVE APTITUDE

1. (4) $4\tan\theta = 3$,

$\tan\theta = \frac{3}{4}$

$\sin\theta = \frac{3}{5}$, $\cos\theta = \frac{4}{5}$

2. (3) ATQ,
100% = 360°
Central angle of B = 35%
The central angle corresponding to the employees of group - B

$= \frac{360° \times 35}{100} = \frac{36 \times 35}{10} = 126°$

Now,

$\frac{4\sin\theta - \cos\theta + 1}{4\sin\theta + \cos\theta - 1}$

$= \frac{4 \times \frac{3}{5} - \frac{4}{5} + 1}{4 \times \frac{3}{5} + \frac{4}{5} - 1} = \frac{\frac{12}{5} - \frac{4}{5} + 1}{\frac{12}{5} + \frac{4}{5} - 1}$

$= \frac{12 - 4 + 5}{12 + 4 - 5} = \frac{13}{11}$

3. (3) Volume of sphere $= \frac{4}{3}\pi r^3$

$= 38808$

$r^3 = \frac{38808 \times 3 \times 7}{22 \times 4}$

$r^3 = 441 \times 21$
$r = 21$cm
Surface of sphere

$= 4\pi r^2 = 4 \times \frac{22}{7} \times 21 \times 21$

$= 63 \times 88 = 5544 cm^2$

4. (2) $x + \frac{1}{x} = 7$

$\Rightarrow x^3 + \frac{1}{x^3} = 343 - 21 = 322$

5. (3) $\tan A = \frac{10}{15} = \frac{2}{3}$

$\tan A = \frac{2}{3}$

Hypotenuse $= \sqrt{2^2 + 3^2} = \sqrt{13}$

$\Rightarrow \cos A = \frac{3}{\sqrt{13}}$

$\Rightarrow \cos^2 A = \frac{9}{13}$

(wrong answer is given by SSC.)

6. (2) $(a+1)^2 + (a+2)^2 = 16$
$\Rightarrow a^2 + 1 + 2a + a^2 + 4a + 4 = 16$
$\Rightarrow 2a^2 + 6a = 11$
$\Rightarrow 4a^2 + 12a = 22$
Now,
$40 + 12a + 4a^2 = 40 + 22 = 62$

7. (3) Let, efficiency of man = m and efficiency of women = w
ATQ,
$(12M + 12W)9 = (6M + 15M)12$
$\Rightarrow 36M + 36W = 24M + 60W$
$\Rightarrow 12M = 24W$

$\Rightarrow \frac{M}{W} = \frac{2}{1}$

Total work $= (12 \times 2 + 12 \times 1)9$
$= 36 \times 9$

Half of the work $= \frac{36 \times 9}{2}$

ATQ, $\frac{36 \times 9}{2} = 9W \times D$

$\Rightarrow 18 = 1 \times D$
$\Rightarrow D = 18$ days

8. (1) Volume of hemisphere $= \frac{2}{3}\pi r^3$

$= \frac{2}{3} \times \frac{22}{7} \times 5.6 \times 5.6 \times 5.6$

$= \frac{44 \times 0.8 \times 5.6 \times 5.6}{3}$

$= 367.95\ cm^3$

9. (3) ATQ,
The length of the faster train.

$= (48 - 36) \times \frac{5}{18} \times 33$

$= \frac{12 \times 5 \times 33}{18} = 110$m

10. (3) $\tan\theta + \cot\theta = 12$

$\tan\theta + \frac{1}{\tan\theta} = 12$

On square both side

$\tan^2\theta + \frac{1}{\tan^2\theta} + 2 = 144$

$\tan^2\theta + \cot^2\theta = 142$

11. (2) ATQ,

1993	1994	1995	1996	1997	1998
215	237	251.5	268	299.5	334
	22	14.5	16.5	31.5	34.5

In 1995 the percentage increase in the total production minimum in comparison to the previous year.

12 (1) I. $K + \frac{1}{K} = 12$

$K^2 + \frac{1}{K^2} = 144 - 2$

$K^2 + \frac{1}{K^2} = 142$

II. $\left(K^2 + \frac{1}{K^2}\right)\left(K - \frac{1}{K}\right)\left(K^4 - \frac{1}{K^4}\right)\left(K + \frac{1}{K}\right)$

$= \left(K^2 - \frac{1}{K^2}\right)\left(K^2 + \frac{1}{K^2}\right)\left(K^4 + \frac{1}{K^4}\right)$

$= \left(K^4 - \frac{1}{K^4}\right)\left(K^4 + \frac{1}{K^4}\right) = \left(K^8 - \frac{1}{K^8}\right)$

Only (I) is correct.

13. (3) Marks obtained by Sushil in English is greater than that by Shyamu = (75–65)%×200
= 10%×200

$= \frac{10}{100} \times 200 = 20$

14. (3) Given, $2x - 1 = 0$

$\Rightarrow x = \frac{1}{2}$

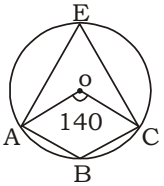
Now, $3x^4 - 2x^2 + 4x - 1$

$= 3\left(\frac{1}{2}\right)^4 - 2\left(\frac{1}{2}\right)^2 + 4 \times \frac{1}{2} - 1$

$= \frac{3}{16} - \frac{1}{2} + 2 - 1$

$= \frac{3}{16} - \frac{1}{2} + 1 = \frac{3 - 8 + 16}{16} = \frac{11}{16}$

15. (2)



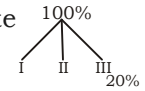
$\angle AEC = \frac{\angle AOC}{2} = 70°$

We know that, $\angle AOC + \angle ABC = 180°$

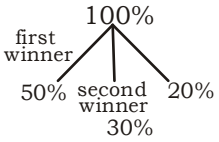
$\angle ABC + 70° = 180°$

$\angle ABC = 110°$

16. (2) Total note

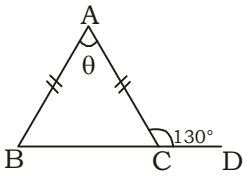


I – II = 20% ----(i)
I + II = 80% ----(ii)
equation (i) + (ii)
I = 50%
II = 30%



ATQ, 10% = 37000
50% = 185000

17. (4)



∠BAC=θ
∠ACB = 50, ∠ABC = 50°
ATQ,
∠BAC + 50 + 50 = 180
⇒ ∠BAC = 80°

18. (4) CP : SP
40 : 36
800 : 1000
32000 : 36000
8 : 9
Require gain percentage
$= \frac{1}{8} \times 100$
= 12.5%

19. (4) She need to pay
70% of 800 = 560

20. (1) Mean proportional between 27 and 300 $= \sqrt{27 \times 300}$
$= \sqrt{8100}$
= 90

21. (4) SI $= \frac{2700 \times 8 \times 5}{12 \times 100}$
= 27 × 40 = 1080
Simple interest is Rs. 1080

22. (2) Let, Number of apple in the basket = x
Average weight of apple = 50
Sum = $50x$
Now, Number of apple = $x + 6$
ATQ, = $55x + 330 = 50x + 60 \times 6$
$\Rightarrow 5x = 360 - 330$
$\Rightarrow x = 6$

23. (3) If the HCF of two number is 8 then 42 cannot be their LCM because 42 cannot divisible by 8.

24. (3) Area of equilateral triangle
$= \frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times 8 \times 8$
= 16×1.732 = 27.71 cm^2

25. (3) Average foreign trade by country P in all the 5 years.
=
$$\frac{220 + 200 + 125 + 115 + 85}{5}$$
$$= \frac{745}{5} = 149$$

1. (4) 2. (3) 3. (3) 4. (2) 5. (3)
6. (2) 7. (3) 8. (1) 9. (3) 10.(3)
11.(2) 12 (1) 13.(3) 14.(3) 15.(2)
16.(2) 17.(4) 18.(4) 19.(4) 20.(1)
21.(4) 22.(2) 23.(3) 24.(3) 25.(3)

GENERAL AWARENESS

1. (4) Lineation and Foliation is the characteristic of Metamorphic rocks.

2. (3) **ICC T-20 World Cup-2022 Australia** Champion-England, Runner-up-Pakistan
Man of the Series-Sam Curran
Final Man of the Match-Sam Curran
ICC T-20 World Cup 2024-West Indies and USA.

3. (4) Dry farming encompasses specific agricultural tech for the non-irrigated cultivation crops.
Vertical farming is the practice of growing crops in vertically stacked layers.
Terrace farming is the process of cultivating crops on the sides of hills or mountains by planting on graduated terraces carved into the slope.

4. (2) Article 63 -There shall a Vice President of India
Article 64 - Vice President to be ex officio chairman of Rajya Sabha
Article 69 - Oath of Vice President

5. (1) Maharashtra - Bhaubeej, Narali Purnima, Palkhi, Pola, Kala Ghoda.
Punjab - Shaheedi Jor Mela, Gurupurab, Hula Mohalla.
Goa - Sao Joao Festival
Odisha - Chaitra Jatra, Dhanu Jatra, Thakurani Yatra, Bali Yatra, Naukhai

6. (1) Governor of Uttar Pradesh-Anandiben Patel
Lok Sabha - 80
Rajya Sabha - 32
Swatantra Dev Singh - Jal Sakti Minister

7. (4) Eid al-Fitr marks the end of Ramdan, the Muslim holyday month of fasting.
Ramdan is the ninth month of the islamic calendar.
Eid-al-Adha (Feast of sacrifice)
To Commemorate Prophet Ibrahim's devotion to Allah through his willingness to sacrifice his son.

8. (4)

9. (3) Green algae have chloroplasts that contain chlorophyll a(blue) and b(green), pigments beta Carotene (Red-orange) and Xanthophylls (Yellow). The cell contain cellulose. They store carbohydrate in the form of starch.

10. (4) Dhondo Keshav, Karve (Maharshi Karve) advocated widow remarriage and himself married a widow. He founded first women's University (SNDT). He was awarded Bharat Ratna in 1958.

11. (2)

12. (2) An olfactory indicator is a substance whose smell varies when it is mixed with an acidic or basic solution Ex:- Vanilla, Clove and Onion. The gustatory indicators are the taste receptors.
Ex:- tongue, palate, exophages, epiglottis and cheek cells.

13. (1) Badminton (Poona) was played by British army officers stationed in India in 1860s.
Baseball was initially known as "Mignonette".
Kho-Kho was initially known as 'Rathera'. The modern form of the game was invented in 1914.

14. (1) Election Commission of India was formed on the 25th January 1950. It comes under article 324.
Anup Chandra Pandey and Arun Goel are the Election Commissioners.
25th January is celebrated as National Voter's Day.
15. (2) S Janaki is known as Nightingale of South India. In 2013, she refused to accept Padma Bhushan Award.
K.S. Chitra - Padma Bhushan (2021) and Padma Shri (2005)
Lata Mangeshkar - Padma Bhushan (1969), Dada Saheb Phalke (1989), Padma Bhushan (1977), Bharat Ratna (2001) and National of the Legion (2006).
16. (2) T.V. Somanathan - Finance Secretary
Rakesh Mishra - Special Secretary, Govt. of Uttar Pradesh
17. (3) Kanchipuram - Cholas (2BC) and Pallava (6th and 8th AD)
18. (4)
19. (1) Charles Wood sent a dispatch to Dalhousie (Governor General of India) in 1854. It suggested that primary schools must adopt vernacular languages. It also suggested high school to use Anglo - vernacular medium and English should be the medium for college-level education.
20. (1) Indian independent Act, 1947 partitioned British India into two new Independent dominions of India and Pakistan. The Act received the Royal Assent on 18 July, 1947.
3rd June Plan (Mount Batten Plan) is agreement between INC, Muslim League and Sikh community. It was the last plan for Independence.
21. (3)
22. (1) The first census started in 1872. The census has been conducted 16 times as of 2021.
23. (1) CaO - Quick lime
$CaCo_3$ - Chalk
$Ca(OH)_2$ - Slaked lime
24. (3) Article 256 - Every law enacted by the government has to be in conformity with the constitution.
25. (3) Sundri - Mangrove forest
Teak - Hard wood forest
Kikar - Thorny forest

1. (4) 2. (3) 3. (4) 4. (2) 5. (1)
6. (1) 7. (4) 8. (4) 9. (3) 10.(4)
11.(2) 12.(2) 13.(1) 14.(1) 15.(2)
16.(2) 17.(3) 18.(4) 19.(1) 20.(1)
21.(3) 22.(1) 23.(1) 24.(3) 25.(3)

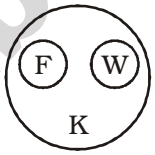
GENERAL INTELLIGENCE & REASONING

1. (1) N U M E R O U S
+2 +2 +2 +2 +2 +2 +2 +2
W P G O Q T U W

O P T I O N A L
+2 +2 +2 +2 +2 +2 +2 +2
R Q K V P Q N C

N O T E B O O K
+2 +2 +2 +2 +2 +2 +2 +2
Q P G V Q D M Q

2. (4) The possible venn diagram is.



Neither conclusion follows.
3. (1) 16+4÷2*12–4 = 40
Interchanging + and ×
16×4÷2+12–4 = 40
32+8 = 40
40 = **40**
4. (1)

A	R	T	I	S	T
↓	↓+1	↓	↓	↓	
A	S	T	I	T	T

5. (3) and

A	D	V	I	C	E
↓	↓+1	↓	↓	↓+1	
A	E	V	I	D	T

Similarly,

A	S	P	E	C	T
↓	↓+1	↓	↓	↓+1	
A	T	P	E	D	T

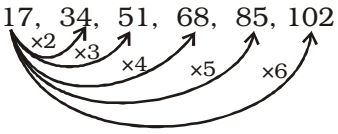
6. (1) 18×2+3×2 = 42
⇒ 14×2+4×2 = 36
⇒ 13×2+4×2 = **34**
7.(3) $144 : 36 \rightarrow \left(\frac{36}{3}\right)^2 = 144$

$81 : 27 \rightarrow \left(\frac{27}{3}\right)^2 = 81$

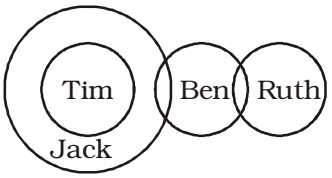
Similarly,

$196 : 42 \rightarrow \left(\frac{42}{3}\right)^2 = 196$

8.(1) By hit and trial method
20–10×342÷19+51 = 211
Interchanging 51 and 20, – and +
51+10×342÷19–20 = 211
51+10×18–20 = 211
51+180–20 = 211
51+160 = 211
211= 211
9.(1) Second is the unit of time, similarly ampere is the unit of electric current.
10.(4)
11.(2) Vertical antonyms of horizonal,
Similarly,
Dry antonyms of humid
12.(1) The pattern follow here.



13.(2) The possible venn diagram



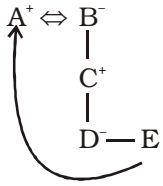
Only conclusion 111 follows
14.(1) The pattern follow here.

M	O	R
↓+6	↓+9	↓+13
S	X	E
↓+6	↓+9	↓+13
Y	G	R
↓+6	↓+9	↓+13
E	P	E
↓+6	↓+9	↓+13
K	**Y**	**R**

15.(4)
16. (2) By hit and trial method
20÷4–5×6+3 = 32
Interchanging + and –
20÷4+5×6–3 = 32
5+30–3 = 32
32 = 32

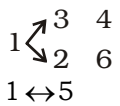
17.(2) 11–23 → 11×2+1 = 23
9–16 → 9×2+1 = 19
25–51 → 25×2+1 = 51
13–27 → 13×2+1 = 27

18.(1) A%B–C+D*E, A related to E



Father's Father

19.(4) From fig (i) to fig (iii)

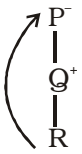


1 ↔ 5
2 ↔ 3
4 ↔ 6

20.(2) K P W → K $\overset{+5}{}$ P $\overset{+7}{}$ W
Q G M → Q $\overset{-10}{}$ G $\overset{+6}{}$ M –odd
D I P → D $\overset{+5}{}$ I $\overset{+7}{}$ P
S X E → S $\overset{+5}{}$ X $\overset{+7}{}$ E

21.(1) J, D, X, R, L, F
–6 –6 –6 –6 –6

22.(4) By hit and trial method
P×Q+R



P is the paternal grandmother of R

23.(4) The pattern follow here is.

$(4 + 6) \times \frac{(4+6)}{2} = 50$

and, $(13 + 3) \times \frac{(13+3)}{2} = 128$

Similarly, $(15 + 3) \times \frac{(15+3)}{2} =$ 162

24.(4) The order of words in a dictionary is.
2. Sublimity
5. Submarine
3. Submerge
1. Submerse
4. Submit

25.(1)

1. (1) 2. (4) 3. (1) 4. (1) 5. (3)
6. (1) 7. (3) 8. (1) 9. (1) 10.(4)
11.(2) 12.(1) 13.(2) 14.(1) 15.(4)
16.(2) 17.(2) 18.(1) 19.(4) 20.(2)
21.(1) 22.(4) 23.(4) 24.(4) 25.(1)

ENGLISH LANGUAGE AND COMPREHENSION

4. (3) "skillfully" is correct expression. It's an adverb and has bee used here to modify the verb "handle"
9. (4) "different from the one" is correct substitute. Means-one item is distinct from the other. Different takes preposition 'from'.
15. (1) 'straight' is correct adverb. There is no word. 'straightly' in the dictionary.
20. (4) "steer clear of" means to stay away.

1. (3) 2. (3) 3. (4) 4. (3) 5. (2)
6. (1) 7. (3) 8. (4) 9. (4) 10.(1)
11.(3) 12.(3) 13.(4) 14.(1) 15.(1)
16.(3) 17.(3) 18.(2) 19.(1) 20.(4)
21.(1) 22.(1) 23.(4) 24.(2) 25.(3)

Words	**Meaning in English**	**Meaning in Hindi**
Ambidextrous	Having equal ability in both hands; in particular, able to write equally well with both hands.	उभयहस्तकुशल; दाएँ और बाएँ दोनों हाथों से समान रूप से काम कर सकने योग्य
Immune	Having natural protection against a certain disease or illness. *Ant. susceptible.*	किसी रोग से प्राकृतिक रूप से सुरक्षित; प्रतिरक्षित
Omniscient	one who knows everything.	सर्वज्ञ
Squawk	1) to utter a harsh abrupt scream. 2) to complain or protest loudly or vehemently.	चीखना शिकायत करना