QUANTITATIVE APTITUDE

1. (1) Average of cost price of all the articles is

$$= \frac{650 + 370 + 450 + 590}{4}$$

$$= \frac{2060}{4}$$

= 515 Average of selling price of all the articles is

$$= \frac{750 + 450 + 650 + 650}{4}$$

$$= \frac{2500}{4}$$

= 625

Required difference = 625–515 = 110

2. (1) Let the speed of second train = x km/h and, the speed of first train = x+4 km/h

ATQ,

$$\frac{400}{x + x + 4} = 10$$

$$\Rightarrow 40 = 2x+4$$

$$\Rightarrow x = 18$$

∴ Speed of slower train = 18 km/h

3. (1) tan2x = tan[(α+β) + (α–β)]

$$= \frac{\tan(\alpha + \beta) + \tan(\alpha - \beta)}{1 - \tan(\alpha + \beta)\tan(\alpha - \beta)}$$

$$= \frac{a+b}{1-ab}$$

4. (4)

Aluminium   Copper
P→ 5   11 = 16 ×1
                        Same
Q→3×2   5×2 = 8   ×2

Thirdally –(5×1+6×3):(11+10×3) = 18 : 41

∴ Required percentage

$$= \frac{23}{41} \times 100$$

= 56.09%

5. (3)

x   1200   1600

2 years   2 years

Simple interest of 2 years = 1600–1200 = Rs. 400

Now, $\frac{8000 \times 2 \times R}{100}$ = 400

⇒ R = 25%

6. (4) 3422213AB is divisible by 9, when sum of its digit is divisible by 9.

3422213AB is divisible by 11, when (3+2+2+3+B)–(4+2+1+A) is divisible by 11 or zero.

∴ 19+A+B is multiple of 9 and 10+B–7–A = 0, A–B = 3 ....(I)
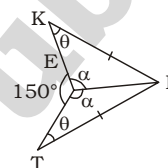
Now, 19+A+B must be 27, A+B = 8 ...(II)

∴ Value of A = 5 and B = 3(satisfy)

∴ Value of 2A+B = 2×5+3 = 13

7. (2) Required ratio = (4+25+13) : (26+5+10) = 42 : 41

8. (3) ATQ,

In ΔKEI and ΔTEI

KI = IT and EK = ET

∴ ΔKEI ≅ ΔTEI

∴ ∠K = ∠T and ∠KEF = ∠TEI

and 2α = 360°–150°

⇒ 2α = 210°

⇒ α = 105°

9. (2) The ratio of total central angle formed by sector R and S to the total central angle formed by sector U and V is → (17+13) : (6 + 9) = 30 : 15 = 2 : 1
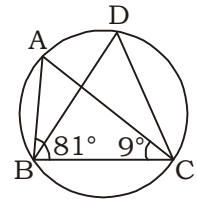
10. (2)
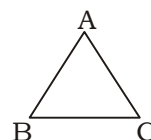
We know that

∠A+∠B+∠C = 180°

∠A = 180°–110° = 70°

11. (2)

In Δ ABC

∠A = 180° – 81°– 9° = 90°

∴ ∠BDC = ∠BAC = 90°

(∵ Angle in the same sector)

12. (4) $x = 2 - 2^{\frac{1}{3}} + 2^{\frac{2}{3}}$

$$\Rightarrow x-2 = 2^{\frac{2}{3}} - 2^{\frac{1}{3}}$$

cubing both sides

$$\Rightarrow x^3 - 8 - 6x(x-2)$$

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

$$\Rightarrow x^3 - 8 - 6x^2 + 12x$$

$$= 2 - 3 \times 2(x-2)$$

$$= 2 - 6x + 12$$

$$\Rightarrow x^3 - 6x^2 + 18x = 14+8$$

= 22

13. (4)

$$\frac{\cos(\pi - A)\cot\left(\frac{\pi}{2} + A\right)\cos(-A)}{\tan(\pi + A)\tan\left(\frac{3\pi}{2}+A\right)\sin(2\pi - A)}$$

$$= \frac{-\cos A(-\tan A)\cos A}{\tan A(-\cot A)(-\sin A)}$$

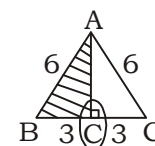$$= \frac{\cos^2 A\sin A}{\cos A\sin A} = \cos A$$

14. (1) We know that,

a³+b³+c³–3abc

=(a+b+c)(a²+b²+c²–ab–bc–ca)

⇒ 85–75 = 5 (a²+b²+c²–ab–bc–ca)

⇒ a²+b²+c²–ab–bc–ca = 2

15. (1)

Length of AC is $=\dfrac{\sqrt{3}}{2}\times 6$

$=3\sqrt{3}$ unit.

$\therefore$ Area of ΔABC is

$=\dfrac{1}{2}\times 3\times 3\sqrt{3}$

$=\dfrac{9\sqrt{3}}{2}$ unit^2

$\therefore$ Area of shaded region is

$=\dfrac{9\sqrt{3}}{2}-\dfrac{1}{4}\times\dfrac{22}{7}\times 1$

$=\dfrac{9\sqrt{3}}{2}-\dfrac{11}{14}$

$=\dfrac{1}{2}\left(a\sqrt{3}-\dfrac{11}{4}\right)$ unit^2

16. (3) The difference between the sales turnover of company H and F = 400–230 = 170

17. (2) $\dfrac{2abc}{9}=\dfrac{2\times(-12)(-6)(18)}{9}$

$= 288$

18. (3)

Now, 110 units = 33000

120 units $=\dfrac{33000}{110}\times 120$

$=$ Rs. 36000

$\therefore$ Required selling price = Rs. 36000

19. (1) Let score in 10th inning = x

Total run in 9 inning = 522

Average run after 10th inning = 61

Total runs after 10th inning = 610

ATQ, 522 + x = 610

$\Rightarrow x = 88$

20. (3) Mean proportion all between 25 and 225
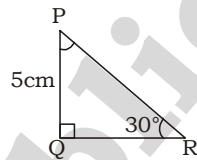
$=\sqrt{25\times 225}=5\times 15=75$

21. (1) Work done by Pawan in 8 days $=\dfrac{8}{32}=\dfrac{1}{4}$

Work done by Sandeep in 27 days $=\left(1-\dfrac{1}{4}\right)=\dfrac{3}{4}$

$\therefore$ Total work will be done by Sandeep $=\dfrac{27}{3}\times 4=36$ days.
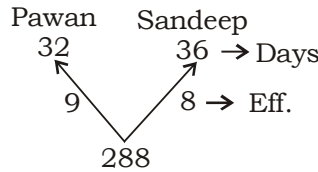
$\therefore$ Required number of days

$=\dfrac{288}{9+8}=16\dfrac{16}{17}$ days
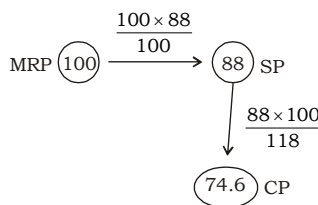
22. (4) Required LCM = 3×6×7 = 126

23. (1)

In ΔPQR

$\tan 30° =\dfrac{PQ}{QR}$

$\Rightarrow\dfrac{1}{\sqrt{3}}=\dfrac{5}{QR}\Rightarrow QR=5\sqrt{3}$ cm

24. (2) ATQ,

Now, 74.6 units = 528

100 units

$=\dfrac{528}{74.6}\times 100$

$= 707.8$

$\therefore$ Marked price of shopkeeper = 707.8 $\approx$ 708

25. (1) ATQ,
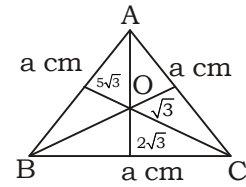
Area of ΔABC = Area of Δ (AOB+BOC+AOC)

$\Rightarrow\dfrac{\sqrt{3}}{4}\times a^2$

$=\dfrac{1}{2}a(5\sqrt{3}+2\sqrt{3}+\sqrt{3})$

$\Rightarrow\dfrac{\sqrt{3}}{4}a^2=\dfrac{1}{2}\times 8\sqrt{3}$

$\Rightarrow a = 16$

$\therefore$ Perimeter of triangle = 16×3 = 48 cm

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

GENERAL AWARENESS

1. (1) 68th National Film Award
Best Feature Film - Soorarai Pottru
Best Non-Feature Film - Testimony of Ana
Best Book - The Longest Kiss
Dadasaheb Phalke Award - Asha Parekh
Best Music Director - director S.Thaman

2. (1) Narrow money refers to a category of money supply that includes all the real money held by the central bank. It includes coins and currency, demand deposits and other liquid assets.

3. (2) Buddha belongs to Sakya gana.

4. (2) Padma Surbrahmanyam is a Bharata Natyam dancer. She was awarded Padma Shri (1981) and Padma Bhushan (2003).

5. (2)

6. (4) Article - 131 - vests the supreme court with Original and exclusive Jurisdiction to determine the justiciable dispute between the Union and the States or between the states.

7. (2) The purpose of vacuole is to store food and waste product. Since meristems are young cells and are actively dividing, they require foods instantly and there is no requirement of storing food. Also, they do not produce large amount of waste. Hence, they lack vacuoles.

8. (4)

9. (4) Ashadha is the 4th lunar month in Hindu calendar.

Kartik is the 8th lunar month in Hindu calendar. Karwa Chauth, Dhanteras, Govardhan Puja, Chhath Puja, etc. are the festivals celebrated in this month.

Vaishakha is the 2nd lunar month in Hindu calendar. Buddha Purnima, Akshaya Tritiya are celebrated in this month.

Shravana is the 5th lunar month in Hindu calendar.Hariyali Teej, Nag Panchami, Raksha Bandhan, Sanskrit Diwas are celebrated in this month.

10. (3) Article-263, Provided that an inter-state council may be stablished if at any time it appears to the president that the public interest would be served by the establishment of a council.

Founded:- 23 May 1990

Headquarters:- New Delhi

Chairman:- Prime Minister (Narendra Modi)

11. (4) Hornbill - Nagaland

Ambubachi - Assam

Wangala - Meghalaya

12. (2) The poverty ratio has declined from 39.6% in 2009-10 to 30.9% in 2011-12 in rural India and from 35.1% to 26.4% in Urban India. The decline was thus a uniform 8.7% points over the two years.

13. (1) FIFA Men's World Cup has been held every four years since the inaugural tournament in 1930, except in 1942 and 1946 when it was not held because of the Second World War.

FIFA Men's World Cup 2022 held in - Qatar.

Argentina has won the FIFA world cup 2022 by defeating France in the penalty shoot out by 4-2.

Lionel Messi won Golden Ball and Kylian Mbappe won Golden Boot.

Next FIFA world cup 2026 host countries:- USA, MEXICO, CANADA.

14. (4) The history of India is a three volume work by the Scottish historian James Mill, charting the history of company rule in India. Published in 1817.

15. (1) In ISSF Junior World Cup 2022 , India is second in the medals table with 12 gold, nine silver and 13 bronze medals while China sits on top with 25 gold, 16 silver and 14 bronze medals.

16. (4)

17. (1) The 1956 policy emphasised the need to expand the public sector, to build up a large and growing cooperative sector and to encourage the separation of ownership and management in private industries and, above all, prevent the rise of private monopolies.

18. (2)

19. (4)

20. (2) Parliament passed the Indian Antarctic Bill, 2022, which aims at having India's own national measures for protecting the Antarctic environment as also the dependent and associated ecosystem.

Minister of Earth Sciences - Dr Jitendra Singh

Research stations in Antarctica -Dakshin Gangotri(1984), Maitri (1989) and Bharati (2012).

Dakshin Gangotri was discommissioned in 1990.

21. (3) Bredt's rule states that a double bond cannot be placed at the bridgehead of a bridged ring system, unless the rings are large enough.

Baldwin's rules in organic chemistry are a series of guidelines outlining the relative favorabilities of ring closure reactions in alicyclic compounds.

22. (3) Rice, Jute, Cotton and Sugarcane require high rainfall and high temperature but maize has no requirement of high rainfall and high temperature.

23. (3) The International Olympic Committee (IOC) has launched the first Olympic Values Education Programme (OVEP) in India, with the Olympism-themed curriculum being integrated into the school education system in the state of Odisha.

24. (1)

25. (4) National Parks in Assam - Kaziranga, Manas, Nameri , Dibru-Saikhowa, Orang, Raimona and Dehing Patkai.

Two proposed Wildlife Sanctuaries - North Karbi Anglong, Bordoibam Bilmukh

Biosphere reserve - Manas and Dibru-Saikhowa

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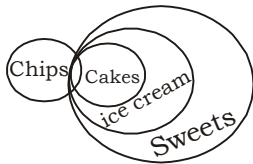21.(3) 22.(3) 23.(3) 24.(1) 25.(4)

❚ GENERAL INTELLIGENCE & REASONING ❚

1. (1)
D R A W I N G
−1 −1 −1 −1 −1 −1 −1
C Q Z V H M F

T U R Q U O I S E
−1 −1 −1 −1 −1 −1 −1 −1 −1
S T Q P T N H R D

Similarly,

C O L O R
−1 −1 −1 −1 −1
B N K N Q

2. (3) The possible venn diagram is

All conclusion I, II and III follow

3. (3) The order of words in a dictionary is
1. Unaffected
2. Unarmed
3. Unasked – third position
4. Unattached
5. Unauthorized

4. (1) 17 × 2 + 13 × 2 = 60
14 × 2 + 14 × 2 = 62
Similarly,
15 × 2 + 13 × 2 = 56

5. (4)
E D I C
+1 +3 +1 +3
F G J F
+1 +3 +1 +3
G J K I
+1 +3 +1 +3
H M L L
+1 +3 +1 +3
I P M O

6. (2) Interchange ÷ and ×, 1 and 3

I. 6 + 4 – 9 × 3 ÷ 1
6 + 4 – 9 ÷ 1 × 3
10 – 9 × 3
– 17

II. 4 × 3 – 1 + 8 ÷ 2
4 ÷ 1 – 3 + 8 × 2
4 – 3 + 16
17

7. (1)
G   A   R
−6   −3   +1
A   X   S
−6   −3   +1
U   U   T
−6   −3   +1
O   R   U
−6   −3   +1
I   O   V

8. (3)

+7   +4   +4   +4
W P U Q   B X C Y – odd

+8   +5   +14 +11
M E K F   Z L X M

9. (4)
57 – 53– 49 → 57 −4 53 −4 49
60 – 56– 52 → 60 −4 56 −4 52
50 – 46– 42 → 50 −4 46 −4 42
47 – 43– 37 → 47 −4 43 −6 37 – odd

10. (2) By hit and trial method
78 + 456 – 45 × 12 ÷ 4 = 519
interchanging 78 and 456, ÷ and ×
456 + 78 – 45 ÷ 12 × 4 = 519
534 – 15 = 519
519 = 519

11. (2)
123 125 127 **129** 131 133
  +2   +2   +2   +2   +2
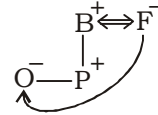
12. (3)
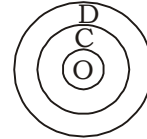
13. (1) By hit and trial method
P × Q + R
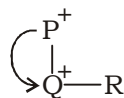
Q is the son of P

14. (3) O $ P * B @ F,   O related of F

daughter

15. (3) The possible venn diagram is

Both conclusions I and II follow

16. (1)
A B I L I T Y

L I B A Y T I

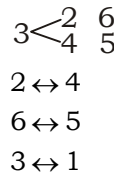C H R O N I C

O R H C C I N

Similarly,

H E A V I L Y

V A E H Y L I

17. (1)

18. (3) From fig (i) to fig (iii).
3 < 2 6
    4 5
2 ↔ 4
6 ↔ 5
3 ↔ 1

19. (3)
$[(\sqrt{256}) \div 4]^3 + (6)^2 - (12 \times 4) + 66 + (36 \div 12) = 65$
Interchanging 4 and 8
$[16 \div 8]^3 + 36 - 48 + 66 + 3 = 65$
8 – 12 + 69 = 65
65 = 65

20. (1)

21. (3) 4 × 9 = 6²
25 × 4 = 10²
Similarly,
216 × 6 = 36²

22. (2)

TOP place value adding (20+15+16)×2 = 102
BAD place value adding (2+1+4)×2 = 14
Similarly,
DOG place value adding (4+15+7)×2=52

23. (3)

L A   M P
+8 +6+4 +2
R Q   G T

G A   M E
+8 +6+4 +2
G Q   G O

G O   A T
+8 +6 +4 +2
V E   U O

24. (1) (6 × 3) – 6 = 12
(9 × 3) – 6 = 21
(3 × 3) – 6 = 3

25. (4)

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

ENGLISH LANGUAGE AND COMPREHENSION

8. (3) "is going to leave" is correct substitute.(Present continuous tense is used for the action just about to take place.)

10. (4) "In order to relieve" is correct expression. We use in order to with an infinitive form of a verb to express the purpose of something.

14. (3) "Furore" is incorrectly spelt.

Meaning- Great anger or excitement expressed towards something by a number of people. (आक्रोश, हंगामा)

18. (3) replace "were" with "was".

When two subjects are joined by as well as, the verb agrees in number and person with the first one.

20. (1) Change "describes" into "described" (as the action took place in past) and vivid into "vividly".

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

Words	Meaning in English	Meaning in Hindi
Chide	Scold, chastise	डाँटना
Dwindle	To become smaller or weaker, wither *Syn. decrease , shrink.* *Ant. complement*	कम होना, क्रमिक रूप से कम या क्षीण होते जाना, मुरझाना
Emancipation	To free from restraint or control, or the power	आजादी
Furious	Very angry	बहुत गुस्से में
Hectic	Very busy	व्यस्त, व्यस्ततापूर्ण
Indulge	To yield to the desire of	लिप्त
Ivory tower	A place or situation where you are separated from the problems of normal life and so do not have to worry about or understand them.	दूसरे की परेशानी से अंजान की स्थिति
Luxuriate	Enjoy (something) as a luxury	मजे लेना
Stretch	To pull something so that it becomes longer or wider.	खींचना
Vitality	The state of being full of energy.	ऊर्जामयता
Inherent	Be basic or permanent part of somebody/something and that cannot be removed. *Syn. Innate, intrinsic, inborn .* *Ant. extraneous, external.*	अंतर्निहित
The jewel in the crown	The most valuable or successful part of something.	किसी चीज का सबसे महत्वपूर्ण अंश (भाग)