QUANTITATIVE APTITUDE

1. (3) The difference between M and Q = 6000×(34–8)%

$$= \frac{6000 \times 26}{100} = 1560$$

(II) The number of Boys in (J, K, L)
= 6000×(12+6+22)%

$$= 6000 \times \frac{40}{100} = 2400$$

Only option (II) is right.

2. (1) $\frac{19^{19} + 20}{18} = \frac{19^{19}}{18} + \frac{20}{18}$

$\Rightarrow \frac{1^{19}}{18} + \frac{2}{18} = \frac{3}{18}$

∴ Remainder = 3

3. (3) sin75°+sin15°

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

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

4. (2) Seats won by R
= 90+80+100+50 +80+65
= 465
Seats won by Q
= 80+90+60+70 +76+70
= 446
Diff. between R and Q
= 465 – 446 = 19

5. (4) Ratio of number of students joining in university A to F is
= 275 : 170
= 55 : 34

6. (2) Cash deposit = 99% of 90% of 750 = $750 \times \frac{90}{100} \times \frac{99}{100}$

$= \frac{75 \times 9 \times 99}{100}$ = Rs. 668.25

7. (4) The ratio of correspoinding sides of similar triangle = $\sqrt{5} : \sqrt{7}$
The ratio of triangle's area
= (The ratio of sides)²
= $(\sqrt{5} : \sqrt{7})^2$
= 5 : 7

8. (1) We know that,
cosecθ +cotθ = x

cosecθ – cotθ = $\frac{1}{x}$

Now,

cosecθ + cotθ = 2 …(I)

cosecθ – cotθ = $\frac{1}{2}$ …(II)

Adding (I) and (II)

2cosecθ = $\frac{5}{2}$

$\Rightarrow$ cosecθ = $\frac{5}{4}$

9. (2)
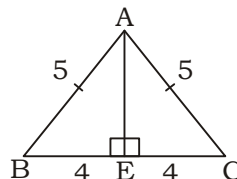
We know that,
AE² = AB² – BE²
AE = $\sqrt{25-16}$ = 3
In ΔAEB

$\Rightarrow$ cot B = $\frac{4}{3}$

$\Rightarrow$ tan C = $\frac{3}{4}$

tanc – tan B = $\frac{3}{4} - \frac{4}{3} \Rightarrow \frac{-7}{12}$

10. (2) LCM of $\left(\frac{3}{8}, \frac{5}{16}, \frac{7}{2}\right)$

$= \frac{\text{LCM of numenator}}{\text{HCF of dinomenator}} = \frac{105}{2}$

$= 52\frac{1}{2}$

11. (2) Let total vote = 100%
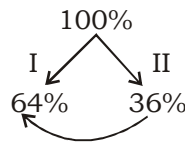
28% = 252
1% = 9
100% = 900
Total number of votes polled is 900.

12. (2) Average number of Salesman

in $C_2, C_4, C_5 = \frac{10+5+15}{3} = 10$

13. (2) We know that,

$x + \frac{1}{x} - k$ $x - \frac{1}{x} = \sqrt{k^2-4}$

Now, $y + \frac{1}{y}$ = 11

$\Rightarrow y - \frac{1}{y} = \sqrt{121-4}$

$\Rightarrow y - \frac{1}{y} = \sqrt{117}$

$\Rightarrow y - \frac{1}{y} = 3\sqrt{13}$

Cubing both side

$\Rightarrow y^3 - \frac{1}{y^3} - 3.3\sqrt{3}$

$= 27\sqrt{13} \times 13$

$\Rightarrow y^3 - \frac{1}{y^3} = 351\sqrt{13} + 9\sqrt{13}$

$\Rightarrow y^3 - \frac{1}{y^3} = 360\sqrt{13}$
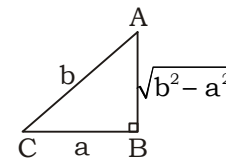
14. (1) Let number of sphere = n
ATQ,

$n \times \frac{4}{3}\pi\left(\frac{6}{2}\right)^3 = \pi \times 90 \times \left(\frac{4}{2}\right)^2$ k

$\Rightarrow n \times \frac{4}{3} \times 27 = 90 \times \frac{16}{4}$

$\Rightarrow$ n = 10

15. (3) b cosθ = a, So, number of solid spheres.

cosθ = $\frac{a}{b}$

AB = $\sqrt{b^2 - a^2}$

cosecθ = $\frac{b}{\sqrt{b^2 - a^2}}$

Now, cosθ + cotθ

$= \frac{b}{\sqrt{b^2 - a^2}} + \frac{a}{\sqrt{b^2 - a^2}}$

$= \frac{b+1}{\sqrt{(b+a)(b-a)}}$

$= \sqrt{\frac{b+a}{b-a}}$

16. (2) $\left(x - \frac{1}{x}\right)^2$ = 12

$\Rightarrow x - \frac{1}{x} = \sqrt{12} = 2\sqrt{3}$

$\Rightarrow x + \frac{1}{x} = \sqrt{12+4} = \sqrt{16}$ = 4

Now,

$$x^2 - \frac{1}{x^2}$$

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

$$= 8\sqrt{3}$$

17. (1) ATQ,
Average of s number (s) = r^4
Average of r number (r) = s^4
Total of S number = sr^4
Total of r number = rs^4
Average of all r + s numbers

$$= \frac{Sr^4 + rS^4}{r+s}$$

$$= \frac{sr(r^3 + s^3)}{r+s} = \frac{sr(r+s)(r^2 + s^2 - rs)}{r+s}$$

$$= sr(r^2 + s^2 - rs)$$

18. (3) Profit = 15% = $\frac{3}{20}$

Loss = 15% = $\frac{3}{20}$

CP$_1$ SP CP$_2$: SP
[20 : 23]$_{\times 17}$
[20 : 17]$_{\times 23}$
340 : 391   460 : 391
Total CP = 340+460 = 800
Total SP = 391+391 = = 782
Loss = CP – SP = 800 – 782
= 18 units (loss)
ATQ,
391 units = 15640
1 unit = 40
18 units = 720

19. (3)   P   Q
Eff.   3   :   1
Total work = 4×36 = 144
Q can do this work alone in

$$= \frac{144}{1}$$
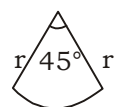
= 144 days

20. (2) Area of a sector of a circle
ATQ,

$$\Rightarrow \pi r^2 \times \frac{\theta}{360} = 88$$

$$\Rightarrow \frac{22}{7} \times r^2 \frac{\theta}{360} = 88$$

$$\Rightarrow \frac{22}{7} \times r^2 \times \frac{45}{360} = 88$$

$$\Rightarrow r^2 = 4 \times 7 \times 8 \Rightarrow r = \sqrt{16 \times 14}$$

$$= 4\sqrt{14} \text{ cm}$$

So, the radius of circle is
$4\sqrt{14}$ cm

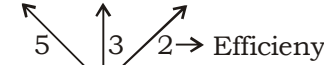21. (4) Let forth proportion = x
$\Rightarrow 7 : 15 :: 21 : x$
$\Rightarrow 7x = 15 \times 21$
$x = 45$

22. (2)   A   B   C
6   10   15

5   3   2 → Efficieny
30 units

The work of (A+B+C) in two
days = 10×2 = 20 units
Remain work = 30–20
= 10 units
C left the work.
A and B will do the remain-

ing work in $= \frac{10}{8} = \frac{5}{4}$

$$= 1\frac{1}{4} \text{ day}$$

23. (2) $a^3 + b^3 + c^3 = 3abc$
If $a + b + c = 0$

24. (2) Let, principal and time = P
and T
then,
Amount = 4.5
SI = 3.5

ATQ, $\frac{P \times 50 \times T}{100} = 3.5P = T$

= 7 years

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

Side of cube = 1.4 cm

$$r = \frac{1.4}{2} \Rightarrow .7 \text{ cm}$$

Volume

$$= \frac{4}{3} \times \frac{22}{7} \times 0.7 \times 0.7 \times 0.7$$

$$= \frac{88 \times 0.049}{3} = 143.7337$$

$$= 144 \text{ cm}^3$$

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

GENERAL AWARENESS

1. (4) First Battle of Tarain (1191)-
Prithviraj Chauhan defeated
Muhammad Ghori
Second Battle of Tarain
(1192)-Muhammad Ghori
defeated Prithviraj Chauhan
Third Battle of Tarain (1216)
-Iltutmish Defeated Taj-al-
Din Yildiz

2. (2) In 2012, Sharmila Biswas
was awarded the Sangeet
Natak Akademi Award.
Minister of Information and
Broadcasting is Anurag
Thakur.

3. (4) Summer Para Olympic 2020
- Tokyo, Japan
Summer Para Olympic 2028
- Los Angels, USA
Winter Para Olympic 2022
- Beijing, China
Winter Para Olympic - 2026 -
Milan (Milano) and Cortina,
Italy.

4. (2) The folk dance of the Gond
tribe of Andhra Pradesh is
Gusadi.
Bharam, Setam, Saila and
Ahirai are the traditional
dance forms of Bharia tribe
of Madhya Pradesh.

5. (4) Preamble of Indian constitution
include republic, justice,
liberty, equality secular,
socialist, sovereign democratic
and Fraternity that describe
the state's character and
aspirations.

6. (1) The State Finance Commission
is constitutional body, formed
under the 73rd and 74th
Amendment act, 1992.

7. (1)

8. (2)

9. (2) Ribosomes help in
producing new proteins by
translational process that
involves three stages,
initiation, elongation and
termination.

10. (4) Automatic stabilizers are
mechanisms build into
government budget,
without any vote from
legislators, that increase
spending or decrease taxes
when the economy slows.

11. (1) Amazon river in South America is the largest river by discharge volume of water in the world. It originates in Andes Mountain and empties into Atlantic sea.
Nile river in Africa is the largest river, originates from lake Victoria and empties into Mediterran sea.

12. (2) Gokulashtami is the another name of Krishana Janmashtami.

13. (1) GNI – GDP + Foreign Production by National residents - Domestic Production by Foreign National residents.

14. (3)

State		Lakes
Kerla	—	Vembanad,Ashtamudi, Vellayani, Periyar, Punnamada
Karnataka	—	Ulsoor, Hebbal, Hesaraghatta, Karanti, Pampa, Madiwala
Rajasthan	—	Fateh Saga, Shakambari, Dhebar Anasagar, Kaylana, Gajner, Kanak
Madhya Pradesh	—	Sankhya, Sangram sagar, Pachmarhi, Munj sagar, Dharam sagar

15. (4) 10° Channel - Andaman and Nicobar
9° Channel - Minicoy and Lakshadeep
8° Channel - Minicoy and Maldives
Duncan Pass - South Andaman and Little Andaman.

16. (2)
Hirakand Dam Mahanadi river Odisha
Bhakra Dam Sutlaj river Himachal Pradesh.
Mettur Dam Kaveri river Tamil Nadu.

17. (1) NH_2OH (NH_3O)- Hydroxy-lamine.

18. (1)
Chirand (Bihar) - northern bank of Ganga
Gutkral - Jammu and Kashmir.
Koldihwa - (Uttar Pradesh) - Valleys of Belan river.

19. (1)

20. (3) Lord Curzon passed the Calcutta Corporation Act in 1899 and announced the partition of Bengal on 20th July, 1905. It came into effect on 16th Oct. 1905.
The Bengal partition was annulled by Hardinge in 1911.

21. (1) India house was founded by Shyamji Krishna Verma in 1905 in London, Leadership was taken Up By V.D Savarkar in 1907.
The Indian Sociologist, was an organisation of India house. It was disbanded in the murder of Curzon Wyllie in July 1909.

22. (2) Duare Ration, Scheme was launched to provide food grains under the Public distribution system (PDS) at the doorstep of the entire population of the state. Under this scheme, around 21000 ration dealers were provided assistance of Rs.1 lakh each to purchase vehicles for ration delivery.
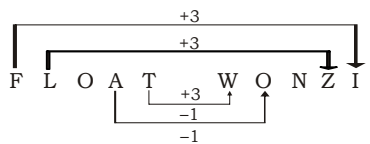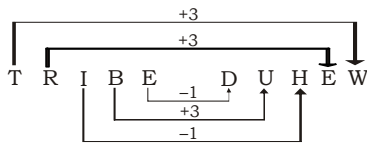
23. (3)
24. (2)
25. (4)

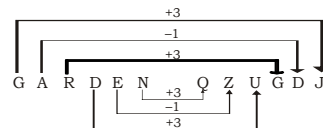|				
1. (4)	2. (2)	3. (4)	4. (2)	5. (4)
6. (1)	7. (1)	8. (2)	9. (2)	10.(4)
11.(1)	12.(2)	13.(1)	14.(3)	15.(4)
16.(2)	17.(1)	18.(1)	19.(1)	20.(3)
21.(1)	22.(2)	23.(3)	24.(2)	25.(4)

GENERAL INTELLIGENCE & REASONING

1. (3) Logic : Vowel –1, Consonant + 3

and ,

Similarly,

2. (1) 21+33+31 = 85
42+17+26 = 85
Similarly,
36+14+35 = 85

3. (2) 8+4×6÷3−9 = 15
Interchanging + and −, 6 and 3
8−4×3÷6+9 = 15
8−2+9 = 15
15 = 15

4. (2) Pain is synonym of agony
Similarly,
Anger is the synonym of rage.

5. (3) 19−28−48 → 18^{+10}28^{+20}48
17−27−47 → 17^{+10}27^{+20}47
15−25−49 → 15^{+10}25^{+20}49 −odd
13−23−43 → 13^{+10}23^{+20}43

6. (1) 9×3−4÷2+1 = 10
Interchanging 1 and 9.
1×3−4÷2+9 = 10
3−2+9 = 10
10 = 10

7. (2) Count the number of odd days from 2009 to get the sum equal to 0 odd days. The odd days in the different year are calculated an
2009 → 2010 → 1, 2011 → 1,
2012 → 2 (Leap year)
2013 → 1, 2014 → 1
Total = 7, So, O odd days so, 2015 will be the same as the calendar for year 2009.

8. (2)
9. (2)
10.(3) From fig (II) to (III)

3↔4
6↔1
5↔2
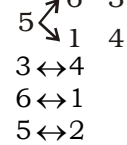
11.(2) By hit and trial method
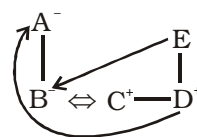A−B÷C

B is the daughter of A.
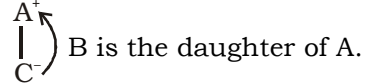
12. (2) The possible venn diagram is
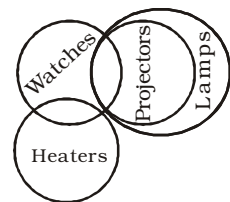
None of the conclusions follow.

13. (2) Paint is related to art
Similarly,
Prose is related to literature

14. (4) A % B & C # D Q E, B related to E

Daughter-in-law

15. (4)
16. (2)

$$15, \quad 4, \quad -8, \quad -21, \quad -35, \quad \boxed{-50}$$
$$-11 \quad -12 \quad -13 \quad -14 \quad -15$$

17. (2)

A	B	C	D
↓+4	↓−6	↓+8	↓−10
E	V	K	T
↓+4	↓−6	↓+8	↓−10
I	P	S	J
↓+4	↓−6	↓+8	↓−10
M	J	A	Z
↓+4	↓−6	↓+8	↓−10
Q	**D**	**I**	**P**

18. (2) 4×3+21 = 33
10×3+111 = 141
Similarly,
25×3+53 = 128

19. (1)

A	R	C
↓+4	↓−2	↓+3
E	P	F
↓+4	↓−2	↓+3
J	N	I
↓+4	↓−2	↓+3
P	L	L
↓+4	↓−2	↓+3
W	**J**	**O**

20. (2) D O L →

$$D — O \xrightarrow[\text{Opposite}]{+8} L$$

M I P →

$$M — I \xrightarrow[\text{Not Opp.}]{+3} P$$

A R I →

$$A — R \xrightarrow[\text{Opposite}]{+8} I$$

N E V →

$$N — E \xrightarrow[\text{Opposite}]{+8} V$$

21. (1)

T E A C H E R
A E T C R E H
S T U D E N T
U T S D T N E
C L A S S E S
A L C S S E S

22. (4) 81×9+15÷3−4 = 50
Putting ÷ and *
81×9+15×3−4 = 50
9+45−4 = 50
50 = 50

23. (1) The possible venn diagram is

A W C

Neither conclusion follows.

24. (4) $12^2−12 = 132$
$20^2−20 = 380$
$2^2−2 = 2$

25. (1)

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

3. (4) "able to adapt himself to" is correct substitute.
meaning of words -
Adopt - to take by choice into a relationship.
especially : to take voluntarily (a child of other parents) as one's own child. (स्वीकार करना, गोद लेना)
Adapt- to make fit (as for a new use) often by modification. (अनुकूल बनाना)
Adept- very skilled or proficient in something. (दक्ष, प्रवीण, निपुण, माहिर)

5. (4) "impractical" is incorrectly spelt.
Meaning -not adapted for use or action; not sensible or realistic. (अव्यावहारिक)

7. (4) 'told' rahu 'to wait' is the correct structure.

10. (1) replace "off" with "of".

14. (4) "neither and nor" is correct combination, while "the principal" takes a singular verb(likes).

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

Words	Meaning in English	Meaning in Hindi
Apex	The top or highest part of something. *Syn. pinnacle, acme*	शिखर या उच्चतम बिंदु
Coerce	to cause someone to do something by force or threat	मजबूर करना
Diligent	Hardworking, laborious	मेहनती
Dormant	marked by a suspension of activity, temporary devoid of external activity	सुषुप्त, सुस्त
Everlasting	continuing for ever; never changing. *Ant. transient, ephemeral, evanescent.*	शाश्वत; स्थायी
Hoodwink	to deceive by false appearance	छल करना / धोखा देना
Humane	marked by sympathy or consideration for others	दयालु, उदार
Magnanimous	kind and generous, munificent, benefactor	दयालु व दिलदार
Misanthropist	someone who dislikes mankind	मानवद्वेषी
Operable	fit, possible, or desirable to use	प्रचलित
Philanthropist	A lover of mankind, altruist, good samaritan	मानवताप्रेमी
Sluggish	slow in movement or reaction by habit or condition	सुस्त