QUANTITATIVE APTITUDE

1. (1)

Given, AB = PQ

∠B = ∠Q
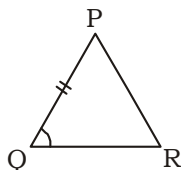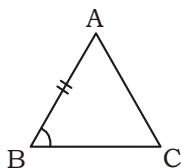
ΔABC, ~ ΔPQR are congruent by SAS if BC = QR

2. (2) Let, principal = P

Rate = R

then, Amount = 3 P

$$2P = \frac{10 \times P \times R}{100}$$

R = 20%

3. (2) Number of students who pass in C and D = 8+26

= 34

Number of students who appears in B, E = 24+20 = 44

Required percentage

$$= \frac{34}{44} \times 100$$

= 77.27% ≈ 77%

4. (4) Relative speed

= (48+60)km

$$= 108 \times \frac{5}{18} = 30 \text{ m/sec.}$$

Length of slower train

= 30×12

= 360 m

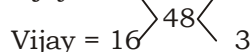5. (3) ATQ, MP× $\frac{85}{100}$ = 1445

$$\Rightarrow MP = \frac{1445 \times 100}{85}$$

⇒ MP = 1700

6. (1) Ajay = 6 , 8
Vijay = 16 , 48 , 3
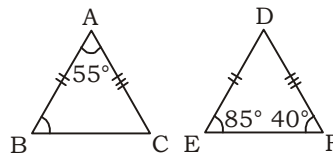
Ajay and Vijay can complete the wok in 2 hours → 2×11

= 22 units

Ajay and Vijay can complete

the work in 8 hours → 4×11

= 44 units

Ajay can complete the work

in $\frac{1}{2}$ hours = 4 units.

Total time = 8 hrs. 30 minutes

7. (1)

∠D = 180–(85°+40°) = 180°– 125°

∠D = 55°

∴ By SAS property ΔABC and ΔDEF congruent.

SAS   Δ ABC ≅ Δ DEF

8. (2) Average speed

$$= \frac{\text{total distance}}{\text{total time}}$$

$$\Rightarrow \frac{250+350}{\frac{250}{50} + \frac{350}{70}} = \frac{600}{10}$$

⇒ 60km/h

9. (1) y = 1+ $\sqrt{3}$ + $\sqrt{4}$

⇒ y– 3 = $\sqrt{3}$

Squaring both side

⇒ y² – 6y + 9 = 3

⇒ y² – 6y + 6 = 0

⇒ y² = 6 (y – 1)   …(I)

Now,

2y⁴ – 8y³ – 6y² + 28y – 84

= 2y² (y²–4y–3)+28y–84

= 2{6(y – 1)} (6y – 6 – 4y – 3) +28y – 84

= 12(y – 1) (2y – 9) + 28y – 84

= 12 (2y² – 2y – 9y + 9) + 28y – 84

= 12(12y–12–11y+9) + 28y – 84

= 12 (y–3) + 28y – 84

= 12y – 36 + 28y – 84
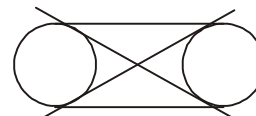
= 40y – 120

$$= 40\left(3+\sqrt{3}\right) - 120$$

= 120 + $40\sqrt{3}$ –120

= $40\sqrt{3}$

10. (2)

∴ Maximum 4 common tangents can be drawn.

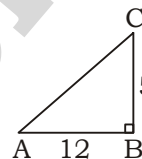11. (4) ATQ,

$$\Rightarrow \frac{1}{2} \times 5\% + \frac{1}{2} \times x\% = 25\%$$

⇒ 5%+x = 50%

⇒ x = 45%

12. (1) cotA = $\frac{12}{5}$,

AC = $\sqrt{12^2 + 5^2}$ = 13

Sin A = $\frac{5}{13}$

13. (1) tan6°×tan45°×tan84°

=tan(90°–84°)   tan45° ×

$$\frac{1}{\cot 84°}$$

$$= \cot 84° \times \frac{1}{\cot 84°} = 1$$

14. (1) The insurance policy in the year 2011 and 2014.

= 2011   2014
54 : 72
3   :   4

∴ The required percentage

$$= \frac{1}{3} \times 100 = 33.33\%$$

15. (4) $xy = \frac{\sqrt{5}-\sqrt{4}}{\sqrt{5}+\sqrt{4}} \times \frac{\sqrt{5}+\sqrt{4}}{\sqrt{5}-\sqrt{4}}$

$xy = 1$, $x = \frac{1}{y}$

then, $x + y = x + \frac{1}{x}$

$$x = \frac{\sqrt{5}-\sqrt{4}}{\sqrt{5}+\sqrt{4}}$$

$$\Rightarrow x = \frac{\sqrt{5}-\sqrt{4}}{\sqrt{5}+\sqrt{4}} \times \frac{\sqrt{5}-\sqrt{4}}{\sqrt{5}-\sqrt{4}}$$

$\Rightarrow x = 5 + 4 - 4\sqrt{5}$

$\Rightarrow x = 9 - 4\sqrt{5}$

Similarly, $y = 9 + 4\sqrt{5}$

$x + y = 9 - 4\sqrt{5} + 9 + 4\sqrt{5} = 18$

$= x + \dfrac{1}{x} = 18 \Rightarrow x^2 + \dfrac{1}{x^2}$

$= (18)^2 - 2 = 324 - 2 = 322.$

Now, $\dfrac{x^2 - xy + y^2}{x^2 + xy + y^2}$

$= \dfrac{x^2 - 1 + \dfrac{1}{x^2}}{x^2 + 1 + \dfrac{1}{x^2}} = \dfrac{322 - 1}{322 + 1} = \dfrac{321}{323}$

16. (3) $\sin\theta - \cos\theta = \dfrac{4}{5}$ ...(I)

Let, $\sin\theta + \cos\theta = x$ ...(II)

eq (I)² + (II)²

$\sin^2\theta + \cos^2\theta - 2\sin\theta.\cos\theta + \sin^2\theta + \cos^2\theta + 2\sin\theta.\cos\theta$

$= \dfrac{16}{25} + x^2$

$\Rightarrow 1 + 1 = \dfrac{16}{25} + x^2$

$\Rightarrow x^2 = \dfrac{34}{25}$

$\Rightarrow x = \dfrac{\sqrt{34}}{5}$

17. (4) Diameter of road = 4 cm and length = 12 cm

Length of wire = 12 m
= 1200 cm

Let, radius of the wire is R.

ATQ,

$\pi \times (4)^2 \times 12 = \pi \times 1200 \times R^2$

$\Rightarrow 16 \times 12 = 1200 \times R^2 = \dfrac{4}{100}$

$\Rightarrow R = \dfrac{4}{10}$ R = 0.4

Thikness of wire = 2R = 0.4 cm

18. (2) Let the fourth proportional is x

16 : 26 : 32 : x

$\Rightarrow 16x = 26 \times 32$

x = 52

19. (1) $\tan(\alpha + \beta) = \sqrt{3}$, $\tan(\alpha - \beta) = 1$

$\tan(\alpha - \beta) = \sqrt{3}$

$\alpha + \beta = 60$ ...(II)

$\tan(\alpha - \beta) = 1$

$\alpha - \beta = 45°$ ...(I)

Adding equation (I) and (II)

$\Rightarrow 2\alpha = 105$

then,

$\tan 6\alpha = \tan 315°$

$= \tan(360° - 45°)$

$= -\tan 45°$

$= -1$

20. (2) $\dfrac{2P}{P^2 - 5P + 1} = \dfrac{1}{10}$,

$20P = P^2 - 5P + 1$

$P^2 + 1 = 25P$

$P + \dfrac{1}{P} = 25$

21. (2)

$\overset{\times 10}{180\overline{)\text{Division}(18}}$

$\underset{\times 4}{}$

$\longrightarrow 45 \rightarrow \text{Remainder}$

Division = 180×18+45
= 3240+45
= 3285

22. (1) Number of players participating in game from school D and E = 82+68 = 150

Numbers of players participating in game from school H and I = 86+108
= 194

Required decrease percentage

$= \dfrac{44}{194} \times 100 = \dfrac{4400}{194} = 22.68\%$

23. (1) The HCF of 222, 642 and 1062

HCF = 6

24. (4) ATQ,

SP of P $= \dfrac{450 \times 190}{100} = 855$

SP of Q $= \dfrac{250 \times 200}{100} = 500$

SP of R $= \dfrac{600 \times 160}{100} = 960$

SP of S $= \dfrac{730 \times 170}{100} = 1241$

SP of T $= \dfrac{400 \times 180}{100} = 720$

Ratio of SP of P and Q to the SP of R, S and T.

= (P+Q) : (R+S+T)

= 1355 : 2921

∴ Required percentage

$= \dfrac{1355}{2921} \times 100 = 46.38\%$

25. (4)

	A	:	B
Capital →	9	:	5

ATQ,

9 unit = 29840

5 unit = 16,577

Total share of A and B = 29840 + 16577 = 46417

ATQ,

90% = 46417

$100\% = \dfrac{46417 \times 100}{90} = 51575$

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

GENERAL AWARENESS

1. (1)
2. (2) Electric Current is defined as flow of electrons in wire. Unit of electric Current is "ampere".
I = Q/t
3. (2)
4. (2)
5. (2) Kambala (Buffalo race) is celebrated in Dakshink of Karnataka.
Karaga is a folk dance of Karnataka, originated as a ritual dedicated to Darupadi known in these ports as Droupadmma. Hoysala festival is celebrated in the remembrance of Hoysala architecture.
6. (1)
7. (2) Front Court - A part of the Court from the mid court line to the baseline that the team with possession of the ball is attacking into.
Midcourt - A line in the centre, dividing it equally into two parts.
8. (4) Atlantic Ocean is an ideal location for natural harbours and ports because it has long indented coastline, making it easier for ships to enter the ports.

9. (1) Brahmputra river originates from the Kailash ranges of Himalayas. It is also known as Yarlung Tsangpo in Tibet, the Dihang in Arunachal, Luit in Assam and Jamuna in Bangladesh.
Subansiri, Ranganadi, Dikrong, Buroi, Borgong Jiabharali, Manas, Sankosh in north and Dikhow, Dhansiri, Krishnai and Desnag in south are the tributaries.

10. (1) **Minhaj al-Siraj was 13**th century Persian historian born in the region of Ghur in 1193. Iltutmish appointed him as Qazi and Imam of Gwalior. During Razia's reign, he was appointed as principal of Madarasa in Delhi. He died during the reign of Balban. Aibak (1206 - 1210), Gayasuddin Balwan (1266-1287), Alauddin Khilji, (1296-1316).

11. (3) Joint Liability groups are a concept established in 2014 by National Bank for Agriculture and Rural Development to provide institutional credit to small farmers.
Some features - Members should be of the same village, only one member of a family can become a member of JLGs, need not to have a little land, etc.

12. (2) Article 3 - alteration of areas, boundaries and names of exiting states. A bill corresponding to alteration of the boundaries of a state can be introduced in either house of the Parliament on the recommendation of President.

13. (1) Ganga Sagar Mela is held on the occasion of Makar Sankranti each year.

14. (3)

15. (4) FIFA U-17 Women's World Championship was first held in 2008.
India hosted the tournament for the first time.
Slogan - Kick off the dream
Winner-Spain
Runners up-Colombia.

16. (4) All-India Muslim League was founded on 30th Dec 1906 at Dacca, Headquarters is at Lucknow. Its founder was Khawaja Salimullah.
1900 INC Session - Lahor - NG Chandravarkar
1902 INC Session - Ahmedabad - Surendra Nath Banerjee.

17. (1) Mahatma Gandhi - G.K. Gokhale
G.K. Gokhle - M.G. Ranade
Bhagat Singh was hanged on the 18th of Dec, 1927.

18. (4)

19. (2) Jasleem Kohli - MD & CEO of Digital Insurance
C Muhammed Faizi - Chairman of Kerala State Haj Committee
Abhishek Singh - CEO of Karamyogi Bharat

20. (3) After the success of purple revolution, new marigold revolution has been started from Sep, 2022 in J & K and Himachal Pradesh.

21. (3) 78 - Platinum (P)
79 - Gold (Au)
81 - Thallium (Tl)

22. (3) Article 355 - Duty of Union to protect states against external aggression and internal disturbance.
Article 365 - Effect of failure to comply with, or to give effect to, directions given by the Union.

23. (1)

24. (2)

25. (1) Bacteria and Phytoplankton are the primary producers. Fish - Both Secondary and territory.

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

GENERAL INTELLIGENCE & REASONING

1. (3) 5+44–8×25 = 203
interchanging 8, 5 and –, ×
$\Rightarrow$ 8+44×5–25 = 203
$\Rightarrow$ 8+220–25 = 203
$\Rightarrow$ 228–25 = 203
$\Rightarrow$ 203 = 203

2. (3) 5×6×2 = 60
8×3×2 = 48
4×3×2 = 24

3. (4) C # D @ E % Z & L # M – N * P

$$C^- — D^+ — E^+ \Leftrightarrow L^- — M^-$$

with $N \Leftrightarrow P$ above and Z^+ below.
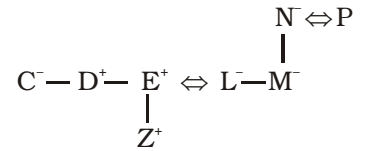
So, Z is Grandson of N.

4. (2) $(9+3)^2 = (12)^2 = 144$;
$(7+8)^2 = (15)^2 = 225$;
$(5+3)^2 = (8)^2 = 64$

5. (3)

6. (4)

7. (1)

Plates, Pens, Boxes, Trays
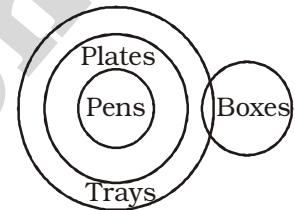
8. (1) 69, 70, 73, 78, 85, 94
+1 +3 +5 +7 +9

9. (3) C $\xrightarrow{Opposit}$ 24+2 = 26
A $\xrightarrow{Opposit}$ 26–2 = 24
P $\xrightarrow{Opposit}$ 11+2 = 13
and,
L $\xrightarrow{Opposit}$ 15+2 = 17
O $\xrightarrow{Opposit}$ 12–2 = 10
G $\xrightarrow{Opposit}$ 20+2 = 22
Similarly,
B $\xrightarrow{Opposit}$ 25+2 = 27 = 1
(According to the number of letters in alphabet)
E $\xrightarrow{Opposit}$ 22–2 = 20
D $\xrightarrow{Opposit}$ 23+2 = 25

10. (4) A÷B×C
$A^+ — B^+$ with C below
So, A is the paternal– uncle of C.

11. (1)
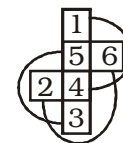
1 $\leftrightarrow$ 4
5 $\leftrightarrow$ 3
2 $\leftrightarrow$ 6
Cube C, D can be formed by folding the fig.

12.(3)
$$\overset{\frown}{B \; Y \; I} \quad ; \quad \overset{\frown}{K \; P \; R}$$
Opposite ; Opposite

$$\overset{\frown}{Q \; L \; A} \quad ; \quad \overset{\frown}{D \; W \; K}$$
Not Opposite ; Opposite

13.(1)

14.(1)
$$\boxed{B} \; R \; I \; G \; H \; \boxed{T}$$
$\downarrow+2 \; \downarrow+2 \; \downarrow+2 \; \downarrow+2$
$$\boxed{T} \; T \; K \; I \; J \; \boxed{B}$$

$$\circledR \; O \; A \; S \; \boxed{T}$$
$\downarrow+2 \; \downarrow+2 \; \downarrow+2$
$$\boxed{T} \; Q \; C \; U \; \circledR$$

Similarly,

$$\circledA \; R \; O \; U \; N \; \boxed{D}$$
$\downarrow+2 \; \downarrow+2 \; \downarrow+2 \; \downarrow+2$
$$\boxed{D} \; T \; Q \; W \; P \; \circledA$$

15.(1) Commence – to Start –(To Begin)
Doctrine – A set of beliefs.
Begin is a synonym of commence so belief is related to doctrine.

16.(1) 4×5–36÷6+10 = 10
interchanging – and ×
4–5×36÷6+10 = 10
⇒ 4–5×6+10 = 10
⇒ 4–30+10 = 10
⇒ 4–20 = 10
⇒ –16 ≠ 10 (incorrect)

17.(4) 686–14×49+400÷5 = 596
interchanging 5 and 49, ÷ and –
⇒ 686÷14×5+400–49 = 596
⇒ 49×5+400–49 = 596
⇒ 245+400–49 = 596
⇒ 645–49 = 596
⇒ 596 = 596

18.(3) 4. Devocalize
2. Devolution
3. Devotement
5. Devoutness
1. Devotional

19.(3) 23×2–12 = 46–12 = 34
37×2–3 = 74–3 = 71
55×2–91 = 110–91 = 19

20.(1)

21.(2) 9^2–1 = 81–1 = 80
7^2–1 = 49–1 = 48 ≠ 52
5^2–1 = 25–1 = 24
11^2–1 = 121–1 = 120

22.(2)
T   M   T   Q
$\downarrow+3 \; \downarrow-6 \; \downarrow+9 \; \downarrow-12$
W   G   C   E
$\downarrow+3 \; \downarrow-6 \; \downarrow+9 \; \downarrow-12$
Z   A   L   S
$\downarrow+3 \; \downarrow-6 \; \downarrow+9 \; \downarrow-12$
C   U   U   G
$\downarrow+3 \; \downarrow-6 \; \downarrow+9 \; \downarrow-12$
F   O   D   U

23.(2)
Q   O   M   K   I   G   E
–2 –2 –2 –2 –2 –2

24.(4) Road is made by concrete similarly, wall is made of brick.

25.(4)
G
Z   F

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

3. (3) "didn't they" is correct question tag. As the sentence is in "Past Indefinite Tense".

8. (4) "across the country" is correct substitute. It means – throughout the country or in the whole country.

9. (4) "Fairly criticised" is correct term. (Action happened in past so use past form of criticise).
"fairly criticised " is correct expression.

11. (4) "repetitive" is incorrectly spelt as repetative"
Means-Happening many times in a similar way.
(पुनरावृत्तीय, दोहराया गया)

13. (2) Remove "all". 'Quite right' means absolutely right.

15. (4) "Evaded paying" is correct substitute. Means – to get away from doing something.

20. (4) "Evolution" is incorrectly spelt here.
Meaning - The gradual process of change and development of something.
(क्रमिक विकास)

1. (4) 2. (2) 3. (3) 4. (2) 5. (1)
6. (3) 7. (2) 8. (4) 9. (4) 10.(1)
11.(4) 12.(1) 13.(2) 14.(1) 15.(4)
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Words	Meaning in English	Meaning in Hindi
Lackadaisical	not showing any interest, care or enthusiasm.	उदासीन, निरुत्साही
Presumptuous	Going beyond what is right, proper, or appropriate because of an excess of self-confidence or arrogance. *Ex:- It was clearly presumptuous of her, to giggle in class in her teacher's presence.*	अक्खड़, ढीठ
Ponder	to think about something carefully or for a long time.	विचार करना, चिन्तन करना
Vigilant	careful and looking out for danger. *Syn. watchful, alert, careful* *Ant. negligent.*	सतर्क सावधान