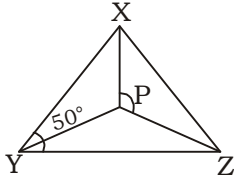


**QUANTITATIVE APTITUDE**

1. (4) Let, the side of a square =  $x$  m  
 $4x = 124$  m  
 $x = 31$

$\therefore$  Area of square =  $x^2 \Rightarrow 961\text{m}^2$

2. (2)



$\angle XPZ = 90 + \frac{\angle XYZ}{2}$

$= 90 + \frac{50}{2}$

$= 90 + 25 \Rightarrow 115^\circ$

3. (3) ATQ,

$\left(13\frac{1}{2}\% + 11\%\right) = 1274$

$\Rightarrow \frac{49}{2}\% = 1274$

$100\% = \frac{1274 \times 2 \times 100}{49} = ₹ 5200$

4. (3) The total expenditure of company L in all the 5 years ( $J_1$ )

$J_1 = \text{Total expense of J} = L = 200 + 150 + 300 + 100 + 400 = 1150$

The total expenditure of company M in all the 5 years ( $J_2$ )  $500 + 350 + 250 + 150 + 100 = 1350$

$J_1 : J_2 = 1150 : 1350$   
 $= 23 : 27$

5. (1) Weight of a new person

$= 58 + 12 \times 3.5$   
 $= 58 + 42 =$

100 kg

6. (3) I.  $100\% - 10,000$

$1\% - 100$

The average number of B, F

and H =  $\frac{8\% + 12\% + 10\%}{3} =$

$\frac{30\%}{3} = 10\%$

$\Rightarrow 10\% = 1000$

II. The ratio of number of cars sold by A to the number of cars sold by E. =  $20 : 16 = 5 : 4$  (incorrect)  
 So, neither I nor II is correct.

7. (2)  $K + \frac{1}{k} + 2 = 0,$

$K + \frac{1}{k} = -2$

Now,

$k^{10} + \frac{1}{k^{11}}$

$= (-1)^{10} + \frac{1}{(-1)^{11}} \Rightarrow 1 - 1 = 0$

8. (2)  $\cos 45^\circ \sin 15^\circ = \cos 45^\circ \sin(60^\circ - 45^\circ)$

$= \frac{1}{\sqrt{2}} (\sin 60^\circ \cos 45^\circ - \cos 60^\circ \sin 45^\circ)$

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

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

9. (3)  $x + \frac{1}{x} = 2$

$x = 1,$

Now,  $x^3 + \frac{1}{x^3}$

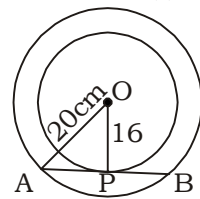
$= (1)^3 + \frac{1}{(1)^3}$

$= 1 + 1 = 2$

10. (1) When viewed from below, the height increases along with the weight.

So, option (I) is correct.

11. (2)



In triangle AOP

$AP = \sqrt{400 - 256}$

$AP = \sqrt{144} = 12$

$AB = 2AP$

$= 2 \times 12 = 24$  cm

12. (1) ATQ,

$2\pi R_1 = 308$  cm ....(I)

$2\pi R_2 = 440$  cm ....(II)

From (II) - (I)

$2 \times \frac{22}{7} (R_2 - R_1) = 132$

$R_2 - R_1 = 21$  cm

13. (2)  $3 \left[ a - \frac{1}{a} \right] + \left[ a - \frac{1}{a} \right]^3$

$= 3 \left[ a - \frac{1}{a} \right] + a^3 - \frac{1}{a^3} - 3 \left[ a - \frac{1}{a} \right]$

$= a^3 - \frac{1}{a^3}$

14. (1) LCM of 7 and 11 = 77

77, 154, 231, 308, 385

Total numbers = 5

15. (3) Vijay = 12

Praveen = 8

P+V - 2 days - 5 units

2×4 days - 5×4 units

8 days - 20 units

Remaining work = 24 units

- 20 units = 4 units

Praveen in one week = 3 units

Time taken by Vijay =  $\frac{1}{2}$  hrs.

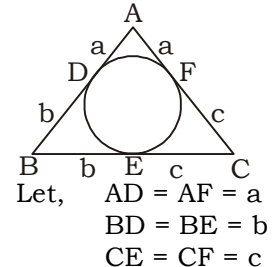
Total time =  $8 + 1 + \frac{1}{2} = 9\frac{1}{2}$

16. (1)  $14 : 30 :: 7 : x$

$\Rightarrow 14x = 30 \times 7$

$\Rightarrow x = 15$

17. (1)



Given

$AB = 16$  cm

$BC = 20$  cm

$AC = 24$  cm

ATQ,

$a + b = 16$  ....(I)

$$\begin{aligned}
 b+c &= 20 \quad \dots(\text{II}) \\
 c+a &= 24 \quad \dots(\text{III}) \\
 \text{Now, (I)+(II)+(III)} \\
 2(a+b+c) &= 60 \\
 a+b+c &= 30 \\
 \text{then (IV) - (II)} \\
 a &= 30-20 = 10 \\
 \text{AD} &= a = 10 \text{ cm}
 \end{aligned}$$

18. (1)  $\triangle ABC \sim \triangle DEF$ ,

$$\frac{AB}{DE} = \frac{BC}{EF} \Rightarrow \frac{1}{2} = \frac{8}{EF}$$

$$\Rightarrow EF = 16 \text{ cm}$$

19. (1)

3	9, 24, 36
3	3, 8, 12
4	1, 8, 4
2	1, 2, 1
	1, 1, 1

LCM =  $3 \times 3 \times 4 \times 2 \Rightarrow 72$   
 $\therefore 72$  is the least number which exactly divisible by 9, 24, 36.

20. (2)  $1 + \sin\theta = m \cos\theta$   
 On dividing both sides by  $\cos\theta$

$$\sec\theta + \tan\theta = m \quad \dots(\text{I})$$

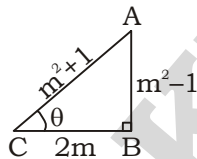
$$\sec\theta - \tan\theta = \frac{1}{m} \quad \dots(\text{II})$$

Adding (I) and (II)

$$\Rightarrow 2\sec\theta = \frac{m^2+1}{m}$$

$$\Rightarrow \frac{1}{2\sec\theta} = \frac{m}{m^2+1}$$

$$\Rightarrow \cos\theta = \frac{2m}{m^2+1}$$



$$\Rightarrow \sin\theta = \frac{m^2-1}{m^2+1}$$

21. (3) Let the market price = x

$$x \times \frac{95}{100} \times \frac{90}{100} = 513$$

$$\Rightarrow x = \frac{513 \times 100 \times 100}{95 \times 90}$$

$$\Rightarrow x = 600$$

22. (4) Speed of boat = x km/h

Speed of current = y km/h

ATQ,

$$\frac{48}{x+y} + \frac{48}{x-y} = 14 \quad \dots(\text{I})$$

ATQ,

$$\frac{4}{x+y} = \frac{3}{x-y}$$

$$\Rightarrow 3x+3y = 4x-4y$$

$$x = 7y \quad \dots(\text{II})$$

Putting the value of x in equation (I)

$$\frac{48}{7y+y} + \frac{48}{7y-y} = 14$$

$$\Rightarrow \frac{48}{8y} + \frac{48}{6y} = 14$$

$$\Rightarrow \frac{6}{y} + \frac{8}{y} = 14$$

$$\Rightarrow 14y = 14 \Rightarrow y = 1$$

So, the speed of the stream is 1 km/h.

23. (2) Let, number of inhabitants = x

ATQ,

$$x \times \frac{80}{100} \times \frac{70}{100} = 12000$$

$$x = 12000 \times \frac{5}{4} \times \frac{10}{7}$$

$$x = 21428.571$$

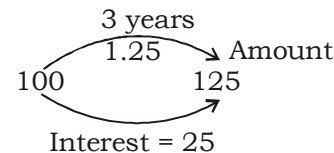
$$x = 21428$$

24. (1) ATQ,

$$\frac{\text{Import during 2017-2018}}{\text{Import during 2016-2017}}$$

$$= \frac{1600}{1200} = 1.33$$

25. (3)



$$\text{Interest of 1 year} = \frac{25}{3}$$

ATQ,

$$\text{Interest of 7 years} = \frac{175}{3}$$

$$\text{Amount} = \left(100 + \frac{175}{3}\right)$$

$$\approx 760,000$$

$$\Rightarrow \frac{475}{3} = 760000$$

$$\Rightarrow 1 \text{ unit} = 1600 \times 3$$

$$\Rightarrow 100 \text{ unit} = 480000$$

1. (4) 2. (2) 3. (3) 4. (3) 5. (1)

6. (3) 7. (2) 8. (2) 9. (3) 10. (1)

- 11.(2) 12.(1) 13.(2) 14.(1) 15.(3)  
 16.(1) 17.(1) 18.(1) 19.(1) 20.(2)  
 21.(3) 22.(4) 23.(2) 24.(1) 25.(3)

### GENERAL AWARENESS

1. (1) Maharashtra's - Dhangari; Koli Lavani, Povadas, Tamasha  
 Arunachal Pradesh - Aji Lhama, Roppi, Hurkani, Pong, Buiga, Chalo, Popir and Wancho.  
 Kerala - Theyyam, Ottan Thullal, Koodiyatham, Kolkali, Thirayattam, Oppana,

2. (3)

3. (1) 1<sup>st</sup> Session - 72 delegates  
 Second Session was held in Calcutta presented by Dadabhai Naroji.

4. (4) MANAS - Mental Health Assistance and Networking Across States.

5. (2) Union Minister of Health and Family Welfare - Mansukh L. Mandaviya

6. (2) Wind farm Cluster from Nagercoil to Madurai is the largest wind farm cluster. Its installed capacity is 1300 Mw.

7. (1) Right Bank tributaries - Yamuna, Son, Punpun and Damodar  
 Left Bank tributaries - Gomti, Ghaghara, Gandaki and Kosi.

8. (4) **Objectives**

- Plans to give more autonomy to the body.
- Combine three separate municipal bodies into one.
- Guides in proper planning of the city.
- It's possible to have uniform decision making body.

9. (2) Lohri - Northern India  
 Losar - Harvest festival  
 Sakewa - tribute to mother nature

Yenya (Indra Jatra) - honour of deity Indra

10. (1) Trypsin was discovered by Wilhelm Kuhne in 1876.

11. (2) Residuary Powers are special powers entrusted by constitution, to the Union Government. The Parliament

- has powers to make any law with respect to any matter which is not a part of the concurrent or state list.
12. (3) Reverse Repo Rate is the rate at which Central Bank borrows money from Commercial banks.  
Current RRR - 5.40%  
MSF - A window for banks to borrow from the RBI in an emergency situation when inter-bank liquidity dries up  
Current MSF = 6.50%  
Current Repo rate = 6.25%
13. (3) Brazil - Coffee and Sugar  
China - Wheat and Rice  
Columbia - Cocaine
14. (2) Pala - Patliputra  
Parmara - Dharanagar  
Vakataka - Nandivardhan
15. (3) Structure - cells, tissues, organ and organ system.
16. (2) Newton's Laws of motion describes the relationship between the motion of an object and the forces acting on it.  
Mendeleev's periodic law-Element properties are a periodic function of their atomic weight.
17. (3) 104<sup>th</sup> - Ceased the reservation of seats for the Anglo Indians in Lok Sabha and State Legislative Assemblies and extended the reservations for SCs and STs for up to ten years.  
105<sup>th</sup> - Restored the power of state governments to recognise socially and educationally backward classes.
18. (1) Fifth Five Year Plan (1974-1978) prioritized Garibi Hatao schemes, employment, justice, agricultural output and defence.  
Fourth Five Year Plan (1969-74) was based on the Gadgil formula focusing on growth with stability and process towards self reliance.
19. (2) Datupatha - Panini  
Natya Shastra- Bharata Romaka  
Siddhanta - Varahamihira

20. (3) **Revolt 1857 (First war for Independence)**

- Kanpur - Nana Saheb  
Bareilly - Khan Bahadur Khan Rohilla  
Lucknow - Begum Hazrat Mahal
21. (2) Narmada - Amarkantak (MP) to Arabian sea  
Mahanandi - Raipur to Bay of Bengal  
Krishna - Mahabaleshwar (Western Ghats) to Bay of Bengal  
Kaveri - Tala Kaveri (Brahmagiri range) to Bay of Bengal

22. (3) On 26th Nov. 1949 constitution assembly adopted the constitution of India.

23. (1) The first edition was held in August 2000. The age limitation of the athletes is from 14 to 18.  
2023 Commonwealth Youth Games will be held in Port of Spain, Trinidad and Tobago.

24. (2)  
25. (4)  $\text{CaSO}_4 \cdot 12\text{H}_2\text{O} \rightarrow$  Plaster of Paris

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

**GENERAL INTELLIGENCE & REASONING**

1. (1) The possible venn diagram is



Both conclusions I and II follows.

2. (1)  $98 - 9 \times 21 \div 7 + 56 = 69$   
Interchanging 56 and 9, + and  $\times$   
By hit and trial method  
 $\Rightarrow 98 - 56 + 21 \div 7 \times 9 = 69$   
 $\Rightarrow 42 + 27 = 69$   
 $\Rightarrow 69 = 69$

3. (3) By hit and trial method  
 $15 - 7 \times 8 + 18 \div 3 = 65$   
Interchanging + and -  
 $\Rightarrow 15 + 7 \times 8 - 18 \div 3 = 65$   
 $\Rightarrow 15 + 56 - 6 = 65$   
 $\Rightarrow 65 = 65$

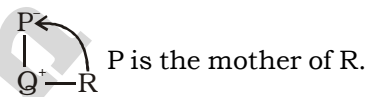
4. (4) The order of words in a dictionary is.  
2. Remain  
5. Remanent

1. Remark  
3. Remember - Fourth position

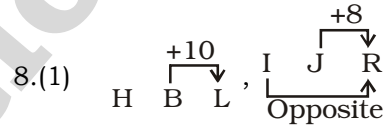
4. Remnant  
5. (3)  
N M T S  
 $\downarrow +5 \downarrow -6 \downarrow +7 \downarrow -8$   
S G A K  
 $\downarrow +5 \downarrow -6 \downarrow +7 \downarrow -8$   
X A H C  
 $\downarrow +5 \downarrow -6 \downarrow +7 \downarrow -8$   
C U O U

**H O V M**

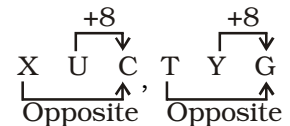
6. (2) By hit and trial method  
P-Q+R



7. (2)



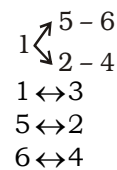
8. (1)



9. (4)

10. (1) By hit and trial method.  
Putting -, +,  $\times$ ,  $\div$ ,  $\times$ ,  $\times$ , =  
 $[(32-28)+(6 \times 4)] \div (1 \times 7) \times 5 = 20$   
 $[4+24] \div 7 \times 5 = 20$   
 $4 \times 5 = 20$   
 $20 = 20$

11. (1) From fig (I) to fig (III)



12. (2)

13. (2) A B O U T  
 $\downarrow -2 \downarrow -2 \downarrow +2 \downarrow -2 \downarrow -2$  and  
Y Z Q S R  
P A R T S  
 $\downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2$   
N Y T R Q

Similarly,  
P L A N T  
 $\downarrow -2 \downarrow -2 \downarrow +2 \downarrow -2 \downarrow -2$   
N J C L R

14. (1)  $5^3 + 5^2 = 150$

$6^3 + 6^2 = 252$

$8^3 + 8^2 = 576$

15. (1) Z Y W T

$\downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2$   
 X W U R  
 $\downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2$   
 V U S P  
 $\downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2$   
**T S Q N**  
 $\downarrow -2 \downarrow -2 \downarrow -2 \downarrow -2$   
 R Q O L

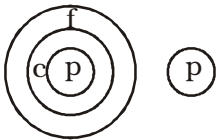
16.(2)

17.(1)  $(6+9) \times 6 = 90$   
 $(12+8) \times 6 = 120$   
 $(13+6) \times 6 = \mathbf{114}$

18.(2)  $\frac{286, 192, 263, 176, 240, 160, 217, 144, \boxed{194}}{23 \quad 16 \quad 23 \quad 16 \quad 23 \quad 16 \quad 23}$

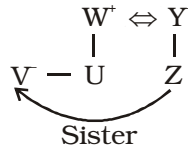
19.(4)  $12 \times 9 + 4 = 112$   
 $10 \times 8 + 4 = 84$   
 $18 \times 5 + 4 = 94$

20.(1) The possible venn diagram is



21.(3)  $7 \times 3 + 3 = 24$   
 $13 \times 3 + 3 = 42$   
 $11 \times 3 + 3 = 36 \dots \text{odd}$   
 $5 \times 3 + 3 = 18$

22.(1) V & U @ W # Y \* Z, V related to Z.



V is sister of Z.

23.(3) Thermometer is used to measure temperature.

Similarly, Oximeter is used to measure Oxygen level in blood.

24.(1)  $\begin{matrix} P & R & E & S & I & D & E & N & T \\ \swarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ R & P & E & S & D & I & N & T & E \end{matrix}$

$\begin{matrix} K & N & O & W & L & E & D & G & E \\ \swarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ N & K & O & W & E & L & G & E & D \end{matrix}$   
 Similarly,

$\begin{matrix} E & D & U & C & A & T & I & O & N \\ \swarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ D & E & U & C & T & A & O & N & I \end{matrix}$

25.(1)  $\begin{matrix} B & E & A & R \\ \swarrow & \downarrow & \downarrow & \downarrow \\ Q & Z & D & A \end{matrix}$

$\begin{matrix} D & U & S & T \\ \swarrow & \downarrow & \downarrow & \downarrow \\ S & R & T & C \end{matrix}$

$\begin{matrix} G & O & L & D \\ \swarrow & \downarrow & \downarrow & \downarrow \\ C & K & N & F \end{matrix}$

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

**ENGLISH LANGUAGE AND COMPREHENSION**

18. (3) "Discussion" is wrongly spelt.

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

**Words**

Ablution	the act of washing yourself clean.
Bicker	to argue about unimportant things.
Boisterous	Full of energy; exuberant; noisy.
Convalescence	A gradual healing after illness or injury.
Languish	to become feeble, weak, or enervated.
Quell	To subdue, put down, or silence (someone or something).

**Meaning in English**

**Meaning in Hindi**

नहाना-धोना
व्यर्थ की कलह करना, चिक-चिक करना
हुल्लड़बाज
स्वास्थ्य-लाभ
कमजोर होना
किसी को दबाना या कुचलना, दमन करना

