

**QUANTITATIVE APTITUDE**

1. (2) Let, population at the beginning of the first year =  $x$

ATQ,

$$x \times \frac{19}{20} \times \frac{19}{20} \times \frac{21}{20} = 947625$$

$$\Rightarrow x = \frac{947625 \times 8000}{361 \times 21}$$

$$\Rightarrow x = \frac{2625 \times 8000}{21}$$

$$\Rightarrow x = 125 \times 8000$$

$$\Rightarrow x = 1000000$$

2. (3)  $20\% = \frac{1}{5}$ ,  $10\% = \frac{1}{10}$

$$CP : MP = 5 : 6$$

$$MP : SP = 10 : 9$$

$$CP : SP = 50 : 54$$

Required profit percentage

$$= \frac{4}{50} \times 100\% = 8\%$$

3. (2) Volume of cube  $a^3 = 343 \text{ m}^3$   
 $a = 7 \text{ m}$

$$\begin{aligned} \text{Total surface area of a cube} &= 6a^2 \\ &= 6 \times 49 = 294 \text{ m}^2 \end{aligned}$$

4. (4) 17, 272, 19, quadripartite  $x$   
 $17 : 272 :: 19 : x$

$$17x = 272 \times 19$$

$$\Rightarrow x = 16 \times 19$$

$$\Rightarrow x = 304$$

5. (3) 500 m race

$$A : B = 500 : 450 \quad B : C = 600 : 540$$

$$= 10 : 9$$

$$= 10 : 9$$

$$\begin{array}{ccc} A & : & B & : & C \\ 100 & : & 90 & : & 81 \end{array}$$

19 units

$$100 \text{ units} = 400$$

$$19 \text{ units} = 76 \text{ m}$$

In the 400 m race, A will beat B by 76 m.

6. (1) Raju Sunil Vishal

$$\begin{array}{ccc} 20 & 30 & 40 \\ \swarrow & \uparrow & \searrow \\ & 4 & \\ \swarrow & & \searrow \\ 6 & & 3 \end{array} \rightarrow \text{Eff.}$$

$$120$$

Efficiency of Raju and Sunil = 10

Efficiency of Raju and Vishal = 9

$$\frac{10}{9}$$

Work done in 2 days = 19

Work done in 12 days =

$$19 \times 6 = 114$$

Total time taken

$$= 12 + \frac{6}{10}$$

$$= 12 \frac{3}{5} \text{ days.}$$

7. (4) CP = 1260

$$SP = 1197$$

∴ Required loss percentage

$$= \frac{63}{1260} \times 100 = 5\%$$

8. (3) Let, the number of students =  $x$

$$\text{ATQ, } \frac{20}{x} = \frac{1}{3}$$

$$\Rightarrow x = 60$$

∴ The number of students is 60

9. (1) Difference of expenditure on Health and entertainment =  $26\% - 14\% = 12\%$

Expenditure on food = 20%

Required percentage

$$= \frac{12}{20} \times 100 = 60\%$$

10. (2)  $J_1$  = Average sales of bike of

$$P, Q, R = \frac{200 + 100 + 500}{3}$$

$$= \frac{800}{3}$$

$J_2$  = Average sales of car of

$$R, S, T = \frac{700 + 1000 + 800}{3}$$

$$= \frac{2500}{3}$$

$$\therefore J_1 : J_2 = \frac{800}{3} : \frac{2500}{3} \Rightarrow 8 : 25$$

11. (3) The HCF of 4.08 and 6.63 is 0.51

Required HCF = 0.51

12. (3)  $a^2 = b^2 + (ab)^2$

From option (3)

Putting  $a = \cot x$ ,  $b = \cos x$

$$\cot^2 x = \cos^2 x + (\cot x \cdot \cos x)^2$$

$$\cot^2 x = \cos^2 x - (1 + \cot^2 x)$$

$$\cot^2 x = \cos^2 x \cdot \text{cosec}^2 x$$

$$\cot^2 x = \cot^2 x \text{ (Satisfy)}$$

13. (3) Let the original number =  $x$

$$\text{ATQ, } \frac{(x+7)5}{3} - 4 = 16$$

$$\Rightarrow \frac{5(x+7)}{3} = 20$$

$$\Rightarrow x + 7 = 12$$

$$\Rightarrow x = 5$$

So, the original number is 5.

14. (2)  $2\cos 135^\circ \sin 15^\circ$   
 $2\cos (90^\circ + 45^\circ) \sin (60^\circ - 45^\circ)$

$$= 2 \times \frac{1}{\sqrt{2}} [\sin 60^\circ \cos 45^\circ - \cos 60^\circ \sin 45^\circ]$$

$$= \sqrt{2} \left[ \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{2}} - \frac{1}{2} \times \frac{1}{\sqrt{2}} \right]$$

$$= \frac{-(\sqrt{3}-1)}{2} \Rightarrow \frac{1-\sqrt{3}}{2}$$

15. (2)

$$\left( \frac{1}{1+a+b^{-1}} + \frac{1}{1+b+5c^{-1}} + \frac{1}{1+\frac{c}{5}+a^{-1}} \right)$$

Let,  $a = 1$ ,  $b = 1$ ,  $c = 5$

$$= \frac{1}{1+1+1^{-1}} + \frac{1}{1+1+5.5^{-1}} + \frac{1}{1+\frac{5}{5}+(1)^{-1}}$$

$$= \frac{1}{1+1+1} + \frac{1}{1+1+1} + \frac{1}{1+1+1} =$$

$$\frac{3}{3} = 1$$

16. (3)  $\sec x - \cos x = 4$

$$\sec x + \cos x = \sqrt{16+4} = 2\sqrt{5}$$

Now,

$$\frac{1+\cos^2 x}{\cos x} = \sec x + \cos x$$

$$= 2\sqrt{5}$$

17. (2) The ratio of number of females in A, P to the number of females in UP.

$$= 25\% \times \frac{3}{8} : 15\% \times \frac{2}{3}$$

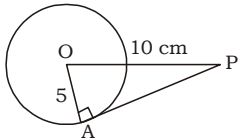
$$= 75 : 80$$

$$= 35 : 40$$

$$= 7 : 8$$

$$= 25 : 16$$

18. (4)



Tangent line AP

$$= \sqrt{OP^2 - AO^2}$$

$$\Rightarrow AP = \sqrt{100 - 25} = \sqrt{75}$$

$$\Rightarrow AP = 5\sqrt{3} \text{ cm}$$

19. (1) Volume =  $\frac{4}{3}\pi(R^3 - r^3)$

$$= \frac{4}{3}\pi(216 - 27)$$

$$= 4\pi \times 63$$

$$= 252\pi \text{ cm}^3$$

20. (4)

$$\underbrace{x}_{4 \text{ yr.}} \underbrace{2x}_{4 \text{ yr.}} \underbrace{3x}_{4 \text{ yr.}} \underbrace{4x}_{4 \text{ yr.}} \underbrace{5x}_{4 \text{ yr.}} \underbrace{6x}_{4 \text{ yr.}}$$

$\therefore$  The sum will become 5 times = 16 years.

21. (2) Difference between the total earning of A and B on all the five days is
- $$= (85 + 76 + 45 + 95 + 110) - (130 + 90 + 102 + 6 + 48)$$
- $$= 456 - 411 = 45$$

22. (4) ATQ,

$$x - 6 + x + 26 + 8x = 180$$

$$\Rightarrow 10x = 160$$

$$\Rightarrow x = 16 \Rightarrow 2x = 32^\circ$$

Value of  $2x$  is 32 degrees.

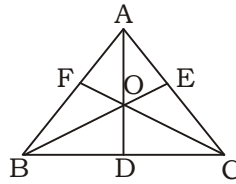
23. (2)  $4(z + 7)(2z - 1) = Az^2 + Bz + C$   
 $\Rightarrow (4z + 28)(2z - 1) = Az^2 + Bz + C$   
 $\Rightarrow 8z^2 + 52z - 28 = Az^2 + Bz + C$

Comparing both side

$$A = 8, B = 52, C = -28$$

$$\therefore A + B + C = 8 + 52 - 28 = 32$$

24. (3)



The intersection of the medians is called the centroid or center of gravity.

25. (3)  $P^3 + 27$

$$= P^3 + 3^3$$

$$= (P + 3)(P^2 + 9 - 3P)$$

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

### GENERAL AWARENESS

1. (1) Ajmer was founded by Chahamanas.

Ahmedabad was founded by Solanki ruler Karamdev-I.

Ahmednagar was founded by Malik Ahmed Nizam Shah I.

2. (1)

Damodar Valley - Bihar-West Bengal

Chambal Valley - Madhya Pradesh

Krishna Valley - Maharashtra

Narmada Valley - Madhya Pradesh

3. (4) The World Cup is organised by the ICC. Until 2005, when the two organizations were merged, it was organized by International Women's Cricket Council.

Most titles - Australia (7), England (4), New Zealand (1). India never won the world cup.

5. (4)

7. (2) Tamasha, Levani, Pavada are the folk dances of Maharashtra.

Koli is the folk dance of Maharashtra and Goa.

8. (4) 2023 Men's FIH Hockey World Cup will be held at Kaling stadium in Bhubaneswar, from 13 to 29 January. In 2026, it will be held in Wavre, (Belgium) and Amstelveen, (Netherlands.)

10. (3) Prateeksha Kashi is a kuchipudi dancer.

11. (2) Part IV - Directive Principles of State Policy.

Part VI - The states

Part IX - The Panchayats

12. (3) Kodaikanal - Princes of hill stations

Shivpuri - Sipri

Mussoorie - Queen of hills.

13. (1) According to 91st Amendment, the size of the council of Ministers, including prime Minister is restricted to 15% of the total size of house.

14. (1) Majhi Vasundhara campaign is an initiative towards sustain use of energy and environmental development. The meaning of the Majhi Vasundhara is (My Earth). It is an initiative of the Environment and climate change department, Government of Maharashtra.

16. (1) Family Court Bill, 2012 amended, the Family Courts Act, 1984. The Act allows state government to establish Family Courts. The Governments of Himachal Pradesh and Nagaland have set up family courts.

17. (3) National Sample Survey merged with Cultural Statistical Office to form the National Statistical Office on 23<sup>rd</sup>, May 2019. The NSO is led by the Ministry of Statistics and Programme Implementation. NSS was set up in 1950.

- Vice chairperson of NITI Aayog - Suman Bery  
CSO Chairman - Parameshvaram Iyer.
18. (1) Michael Faraday - Electric Motor  
Isaac Newton - Law of gravity and motion  
Marie curie was the first woman to win a Nobel prize, the first person and only woman to win a Nobel prize twice. She discovered Polonium and Radium.
19. (1) Hari Prasad Chaurasia, Pravin God - khindi, Rony Majumdar and Nityanand Haldipur are flute players.
20. (2) Adenosine tri-phosphate (ATP) is the source of energy for use and storage at cellular level. Both breathing and heart beat require ATP. ATP helps to synthesise parts of nerve impulses, move molecules into or out of cells.
21. (1) Industrial policy resolution 1956 was the second comprehensive statement on industrial development after policy of 1948. Three categories are (i) Schedule A or government enterprises (ii) Schedule B or mixed enterprises (iii) Schedule C or private enterprises.
22. (4) Chronology of rulers - Sri Gupta, Chadra Gupta I, Savendra Gupta Chandra Gupta II, Kumar Gupta I Skandgupta.
23. (2) Vasco da Gama (Portuguese) was the first European who came to India, on the 20<sup>th</sup> May, 1948 in Calicut.
24. (3)  
25. (4) Gopal Vittal - CEO of Bharti Airtel  
Shovana Narayan - Kathak dancer.

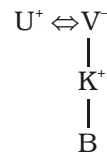
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### GENERAL INTELLIGENCE & REASONING

1. (4)  $59 * 12 * 6 * 24 * 2 * 105.$

Putting -, ÷, +, × =  
 $59 - 12 \div 6 + 24 \times 2 = 105.$   
 $\Rightarrow 59 - 2 + 48 = 105$   
 $\Rightarrow 57 + 48 = 105$   
 $\Rightarrow 105 = 105$

2. (2)  $U + V \times K - B$



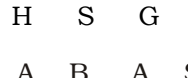
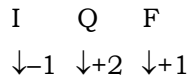
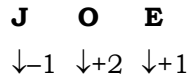
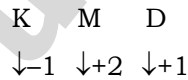
So, U is paternal grandfather of B.

3. (2)

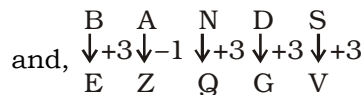
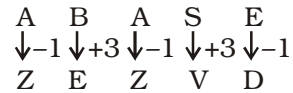
4. (2)

5. (1)

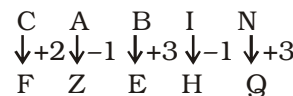
6. (4)



7. (3)



Similarly,

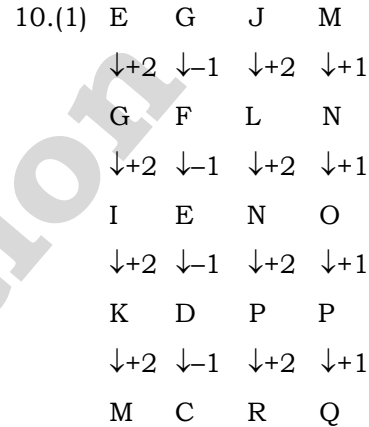


8. (1) 
$$\begin{array}{cccccc} 37 & 39 & 80 & 242 & 970 & 4852 \\ \downarrow \times 1+2 & \downarrow \times 2+2 & \downarrow \times 3+2 & \downarrow \times 4+2 & \downarrow \times 5+2 & \\ \end{array}$$

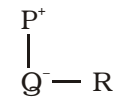
9. (1)  $2+4 \times \left(\frac{2+4}{2}\right) = 6 \times 3 = 18$

$(1+9) \times \left(\frac{1+9}{2}\right) = 10 \times 5 = 50$

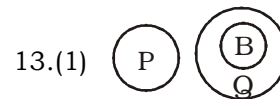
$(3+5) \times \left(\frac{3+5}{2}\right) = 8 \times 4 = 32$



12. (1)  $P - Q \times R$



So, P is father of Q.



14. (2)

15. (2)  $8 \times 6 - 9 \div 3 + 10 = 0$

Interchanging × and -

$\Rightarrow 8 - 6 \times 3 + 10 = 0$

$\Rightarrow 8 - 18 + 10 = 0$

$\Rightarrow 0 = 0$

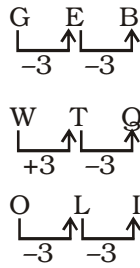
16. (2)  $99 + 100 = 199 + 1000 = 1199$

$15 + 100 = 115 + 1000 = 1115$

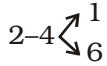
Similarly,

$33 + 100 = 133 + 1000 = 1133$

17.(4)  $7+21 \times 42 \div 14 - 9 = 19$   
interchanging  $\div$  and  $+$   
 $\Rightarrow 7 \div 21 \times 42 + 14 - 9 = 19$   
 $\Rightarrow \frac{1}{3} \times 42 + 14 - 9 = 19$   
 $\Rightarrow 14 + 14 - 9 = 19$   
 $\Rightarrow 28 - 9 = 19$   
 $\Rightarrow 19 = 19$



18.(1) From fig (I) and (II)



So, 6 is opposite of 1.

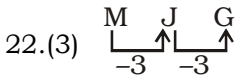
19.(2) Number of letters are the code.

kids are happy  
4 3 3

20.(3) Cells are the part of tissue and organs are the part of body.

21.(2) A librarian is a person who works in a library.

A priest performs worship services in a temple.



23.(1)

24.(3) 2. Employee

5. Employer

4. Employer

1. Empress

3. Empty

25.(4)  $12^2 - 2 = 144 - 2 = 142$

$8^2 - 2 = 64 - 2 = 62$

$4^2 - 2 = 16 - 2 = 14$

$14^2 - 2 = 196 - 2 = 194 \neq 192$

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

6. (4) 7. (3) 8. (1) 9. (1) 10. (1)

11. (4) 12. (1) 13. (1) 14. (2) 15. (2)

16. (2) 17. (4) 18. (1) 19. (2) 20. (3)

21. (2) 22. (3) 23. (1) 24. (3) 25. (4)

**ENGLISH LANGUAGE AND COMPREHENSION**

5. (3) "condensing" is incorrectly spelt as "condencing"

Condense - To change or make something change

from gas to liquid. (गैस का द्रव बनना या बनाना)

6. (2) "Hygiene" is incorrectly Spelt here

Meaning- The science of health, its promotion and preservation, Cleanliness, (स्वास्थ्य विज्ञान, स्वच्छता)

Hygiene is an important consideration in places where food is prepared.

12. (3) "beyond all our calculations" is the correct phrase. Meaning - something gets exponentially higher than what has been estimated.

15. (3) Replace "by" with "for".

"For three years" is correct expression (as no specific time period is mentioned.)

17. (3) "nor does she smile" is correct sequence. Inversion comes in a negative introductory sentence. (See chapter Inversion)

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

6. (2) 7. (4) 8. (3) 9. (2) 10. (3)

11. (1) 12. (3) 13. (3) 14. (4) 15. (3)

16. (1) 17. (3) 18. (2) 19. (2) 20. (1)

21. (1) 22. (1) 23. (4) 24. (4) 25. (4)

Words	Meaning in English	Meaning in Hindi
Hazard	a danger or risk. <i>Syn. danger, peril, threat</i> <i>Ant. safety.</i> <i>Ex:-Smoking causes serious health hazard.</i>	खतरा या जोखिम
Hypocrisy	Behaviour in which somebody pretends to have moral standards or opinions that he/she does not really have.	पाखंड, ढोंग, मिथ्याचार
Instill	To make somebody think or feel something. <i>Syn. inculcate, impart.</i>	किसी के मन में कुछ बैठाना
Retaliate	to react to something unpleasant that somebody does to you by doing something unpleasant in return. <i>Syn. reciprocate, Revenge.</i>	बदले की कार्रवाई करना
Prorogation	to terminate a session of something, (such as a parliament) <i>Syn. Adjournment, suspension</i>	सत्रावसान