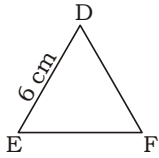
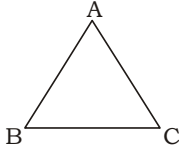


QUANTITATIVE APTITUDE

1. (1) ATQ.



$$\frac{\text{Perimeter of ABC}}{\text{Perimeter of DEP}} = \frac{AB}{DE}$$

$$\Rightarrow \frac{32}{12} = \frac{AB}{6} \Rightarrow AB = 16 \text{ cm}$$

2. (3) Number of cars were not sold of type T in both years

$$= \frac{350000 \times (90 - 75) \times 25}{100}$$

$$+ \frac{440000 \times (95 - 85) \times 25}{100}$$

$$= \frac{350000 \times 15 \times 25}{100 \times 100} +$$

$$\frac{440000 \times 10 \times 25}{100 \times 100}$$

$$= 13125 + 11000 = 24125$$

3. (1) The ratio of number of working days in year R to the number of working days in year T is 160 : 210

$$16 : 21$$

4. (4) Simple interest for 3 years

$$= \frac{30000 \times 3 \times 5}{100} = 4500$$

∴ Required percentage

$$= \frac{45000}{18000} \times 100 = 25\%$$

5. (3)  $m^{12} - 1$

$$= (m^6)^2 - 1^2$$

$$= (m^6 - 1)(m^6 + 1)$$

$$= [(m^3)^2 - 1](m^6 + 1)$$

$$= (m^3 - 1)(m^3 + 1)(m^6 + 1)$$

$$= (m^3 - 1)(m + 1)(m^2 + m + 1)$$

$$(m^6 + 1) \text{ is divided by } (m + 1)$$

So, the remainder is 0.

6. (4) Required percentage

$$= \frac{45}{20} \times 100 = 225\%$$

7. (2) Total profit =  $\frac{540}{3900} \times 100$

$$= \frac{180}{13} \%$$

Now,

$$\begin{array}{r} 8\% \times 13 \quad 16\% \times 13 \\ 104 \quad 208 \\ \hline 180 \\ \text{CP} \rightarrow \frac{28}{76} = 7 : 19 \\ \text{Diff.} = 12 \end{array}$$

$$(7 + 19) \text{ units} = 3900$$

$$12 \text{ units} = \frac{3900}{26} \times 12$$

$$= \text{Rs.} 1800$$

∴ Difference between original of items = 1800

8. (1) (I) We know that, when  $x + y + z = 0$ , then  $x^3 + y^3 + z^3 = 3xyz$

ATQ,

$$x + y + z = 12 - 2 - 10 = 0$$

$$\therefore x^3 + y^3 + z^3 = 3xyz =$$

$$3(12)(-2)(-10) = 72 \neq 360$$

(Not satisfied)

$$(II) x + y = 48$$

$$\Rightarrow 2x + 2y = 96$$

Squaring on both sides,

$$4x^2 + 4y^2 + 8xy = 9216$$

$$4x^2 + 4y^2 = 9216 - 256 = 8960$$

$$\neq 4480$$

(Not satisfied)

Neither I nor II is correct.

9. (3) The ratio of x and y

$$\frac{12500 - 10625}{12500} \times 100 :$$

$$\frac{34000 - 30600}{34000} \times 100$$

$$= \frac{1915}{12560} : \frac{3400}{34000}$$

$$= 1875 : 1250$$

$$= 3 : 2$$

10. (4) Required percentage

$$= \frac{22}{38} \times 100$$

$$= 1875 : 1250$$

$$= 3 : 2$$

$$= 57.89\%$$

11. (4) Let, radius of bigger circle is R and radius of small circle is r.

ATQ,

$$330 - 110 = 2\pi(R - r)$$

$$220 = 2 \times \frac{22}{7} \times (R - r)$$

$$\Rightarrow (R - r) = 35$$

∴ Difference between their radii

$$= 35 \text{ cm}$$

12. (1) ATQ,

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

$$\Rightarrow k = -1$$

$$\therefore k^{11} + \frac{1}{k^4} = (-1)^{11} + \frac{1}{(1)^4} = 0$$

13. (3) Given,

$$\sec^2 A + \tan^2 A = 3$$

$$\Rightarrow 1 + \tan^2 A + \tan^2 A = 3$$

$$\Rightarrow 1 + 2\tan^2 A = 3 \Rightarrow 2\tan^2 A$$

$$= 2$$

$$\Rightarrow \tan A = 1$$

$$\therefore A = 45^\circ$$

∴ The value of  $\cot A = 1$

14. (1) Selling price of item

$$= \frac{8400 \times 75 \times 85}{100 \times 100} = 5355$$

$$\text{Profit} = (5355 - 4000)$$

$$= 1335$$

∴ Required profit percentage

$$= \frac{1355}{4000} \times 100$$

$$= 33.89\% \approx 34\%$$

15. (4) ATQ,

$$2 \times \text{covered surface area}$$

$$= \text{volume}$$

$$2.2\pi r h = \pi r^2 h$$

$$\Rightarrow r = 4$$

∴ Radius of the base of the cylinder. = 4 cm

16. (2)  $x + \frac{1}{x} = 6$

$$\text{Now, } \frac{3x}{2x^2 - 5x + 2}$$

$$= \frac{3}{2x + \frac{2}{x} - 5}$$

$$= \frac{3}{2(6) - 5} = \frac{3}{7}$$

17. (3) Angle made by hour hand at the centre in 4 hours =  $30^\circ \times 4 = 120^\circ$

$\therefore$  Area of required sector =

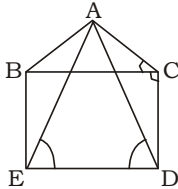
$$\frac{120^\circ}{360^\circ} \times \frac{22}{7} \times (6)^2 = 37.71$$

18. (2) Given,  $\tan\theta + \cot\theta = 2$

$$\therefore \theta = 45^\circ$$

$$\text{Then, } \tan^{200}(45^\circ) + \cos^{200}(45^\circ) = 1 + 1 = 2$$

19. (4)



$\Delta ABC$  is equilateral triangle, then,  $\angle ABC = 60^\circ$

$\angle ACB = 60^\circ$  and  $\angle BAC = 60^\circ$

BCDE is a square then,  $\angle CBE = \angle BED = \angle EDC = \angle EDC = \angle BCD = 90^\circ$

From  $\Delta ABE$ ,  $\angle ABE = 60^\circ + 90^\circ = 150^\circ$

From  $\Delta ACD$ ,  $\angle ACD = 60^\circ + 90^\circ = 150^\circ$

So,  $\angle ABE = \angle ACD$  and  $AB = AC$

So,  $\Delta ABE \cong \Delta ACD$

Then we can say that  $\angle ADC = \angle CAD$

By angle sum property.

$$\angle ACD + \angle ADC + \angle CAD = 180^\circ$$

$$\Rightarrow 150^\circ + \angle ADC + \angle ADC = 180^\circ$$

$$\Rightarrow 2\angle ADC = 30^\circ$$

$$\Rightarrow \angle ADC = 15^\circ$$

20. (1) Let, the Salary of Rida is  $3x$  and salari of Riya is  $5x$ .  
ATQ,

$$\frac{3x + 5000}{5x + 5000} = \frac{5}{7}$$

$$\Rightarrow 21x + 35000 = 25x + 25000$$

$$\Rightarrow 4x = 10000$$

$$\Rightarrow x = 2500$$

$\therefore$  Present salary of Riya =  $2500 \times 5 = 12500$

21. (3) Let average is  $x$ .

ATQ,

Average weight of them

when Ram =  $x + 2$

Shyam =  $x + 4$

Rohan =  $x + 6$

Reeta =  $x + 8$

Mukesh =  $x + 10$  are weighted consecutively.

Average weight difference

between Mukesh and Ram =  $x + 10 - x - 2 = 8$

$\therefore$  Total weight difference between Ram and Mukesh

$$= 8 \times 2 = 16 \text{ kg.}$$

22. (4)  $20\% = \frac{1}{5}$

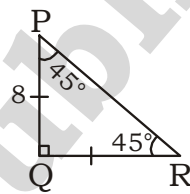
A B  
Eff.  $\rightarrow$  6 5

Total time taken to complete the work when both work

$$\text{together} = \frac{29 \times 6}{6 + 5} = \frac{174}{11} \text{ days}$$

23. (1) Required LCM =  $9 \times 14 \times 19 = 2394$

24. (4)



$$\angle P = \angle R = 45^\circ$$

$$\therefore PQ = QR$$

( $\therefore$  opposite sides of equal angles)

$$\therefore \text{Length of QR} = 8 \text{ cm}$$

25. (4) Solution is not written in handwritten

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

6. (4) 7. (2) 8. (1) 9. (3) 10. (4)

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

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

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

### GENERAL AWARENESS

1. (4) Asha Bhosale is best known as a playback singer in Hindi Cinema having recorded over 12000 songs in more than 20 Indian and foreign languages. She was recognized as the 'Most

Recorded Artist' in the World in 2009 by World Record Academy. She became the first Indian Singer to be nominated for the Grammy Award, for Legacy, an Album with Ustad Ali Akbar Khan. She was honored with Padma Vibhushan in 2008 and Maharashtra Bhushan in 2021.

2. (3) **Article 371**- Provision with respect to the states of Maharashtra and Gujrat .

**Article 371A** - Special provision with respect to the state of Nagaland (Naga hills, Tunsang area.)

**Article 371C** - Special provision with respect to the state of Manipur.

3. (2) Sangam literature is one of the main sources used for documenting the early history of the ancient Tamil country. The ancient sangam poems mention numerous kings, princes and poets, the existence of some of them have been confirmed through a archaeological evidence.

4. (2) Aravalli mountain is the oldest mountain range. The highest peak is Guru Shikhar on Mount Abu at a height of -1722 meters.

The Appalachian Mountains are a system of mountains in eastern to north-eastern North America.

5. (4) A fomite is any inanimate object that, when contaminated with or exposed to infectious agents can transfer disease to a new host. Common fomites - Countertops, Handrails, Doorknobs, light Switches, Mobile phones, Clothing, Glass etc.

6. (4) Telangana - Bathukamma  
Himachal Pradesh - Renuka ji, Fagli, Lavi, Halda, Minjar

7. (2) Peat is the lowest grade of coal and has about 50% of carbon. Lignite as compared to Peat is better and has 65-70% of carbon. Bituminous and Anthracite are good quality of coal with Bituminous having approx 75-80% of carbon and Anthracite having 90-95% of carbon. India is considered to be rich in Bituminous coal.
8. (2) The Non-cooperation movement was launched on 4<sup>th</sup> September 1920, with the aim of persuading to grant self-governance. The Chauri Chaura Incident took place on 4 February 1922 at Chauri Chaura. The police there fired upon a large group of protesters participating in the Non-cooperation movement. In retaliation, the demonstrators attacked and set a police station on fire which killed all of its occupants. The incident led to the death of three civilians and 22 policemen. Mahatma Gandhi halted the Non-Cooperation Movement on the national level on 12 February 1922 as a direct result of the incident. Jallianwala Bagh massacre took place on 13 April, 1919. Bengal Partition was announced on 20 July 1905 by Lord Curzon (Viceroy of India) and implemented on 16 October 1905, it was undone a mere six years later. First Round Table Conference -November 1930 – January 1931  
Second Round Table Conference- September 1931 – December 1931  
Third Round Table Conference - November – December 1932
9. (1) Recently the Kashi Yatra scheme was introduced by the government of Karnataka for the financial benefit of Karnataka residents who wish to visit Varanasi temple. This government scheme offers a financial subsidy of Rs 5000.
10. (4) The Diamond Quadrilateral is a project of the Indian Railways to establish a high-speed rail network in India. The Diamond Quadrilateral will connect the four mega cities of India, viz. Delhi, Mumbai, Kolkata and Chennai, similar to the Golden Quadrilateral highway system.
11. (4) Synecology is the study of interactions among two or more species or a population with their environment. Autecology is the study of the interaction between individual species with their environment.
12. (3) Bihar - Chhath Pooja, Pitrapaksha Mela, Rajgiri Mahotsav, Bihula festival  
Andhra Pradesh- Flemingo, Visakha Utsav, Trupati Ganga Jatara, Hornbill festival, Boori Boot Yollo festival  
Tamil Nadu - Gowri Habba, Pongal, Puthandu festival  
Goa - Shigmo festival
13. (4)
14. (1)
15. (3) Teacher's day is celebrated on 5 September every year in India. Women in Engineering, Science, and Technology (WEST), was launched by Dr. Parvinder Maini, Scientific Secretary, Office of the Principal Scientific Adviser (PSA) to the Government of India. PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) Scheme is aimed at ensuring energy security for farmers in India, along with honouring India's commitment to increase the share of installed capacity of electric power from non-fossil-fuel sources to 40% by 2030 as part of Intended Nationally Determined Contributions (INDCs). The PM-KUSUM Scheme was launched in 2019. National Action for Mechanised Sanitation Ecosystem (NAMASTE) is an initiative to ensure the safety of sanitation workers.
16. (4) The first factory of British was established at Hugli in 1651. It was abandoned in 1690 when they shifted to Calcutta. The first English factory in India was established at Surat in January 1613.
17. (1) Prime Minister Narendra Modi leads mass yoga Event in Mysore International Yoga Day 2022.
18. (1) The width, differs for doubles (10.97 metres) and singles (8.23 metres). International Tennis Federation was founded on 1<sup>st</sup> March, 1913, Headquartered at London. Its President is David Haggerty.
19. (2)
20. (3) The German explorer Alexander Von Humboldt is often considered as father of ecology. Robert Brown discovered the nucleus in 1831. The study of the nucleus is called Karyology. Charles Darwin is known as Father of Evolution. Robert Hooke is known as Father of cytology. The Father of Indian cytology is A K Sharma.

21. (4) Mawsynram is a place that receives the highest average rainfall in the world. This place is located in Meghalaya.

22. (2) The Planning Commission has been replaced by the NITI Ayog on 1 January 2015.

NITI (National Institution of Transforming India) Ayog serves as the apex public policy 'think tank' of the govt. of India.

NITI Ayog chairman - Narendra Modi (PM)

NITI Ayog vice-chairman - Dr. Rajiv Kumar.

NITI Ayog CEO - Shri Parmeshwaran Iyer

23. (4) Wage Bill is the total amount of money that a company or organization pays to its employees. Capital expenditure refers to the estimated expenditure in a fiscal year which creates assets for the govt. and causes reduction in liabilities for the govt.

Receipts obtained from the sale of shares in public sector undertakings (PSUs) are called disinvestments.

24. (2) Rajendra Kumar - Director General of Employees' state insurance corporation (ESIC).

Vijay Jasuja - Non-Executive Independent Director of Stashfin

25. (4) Kakusthavarma was the most powerful ruler of the Kadamba dynasty.

Vasudev Kanva was the founder of Kanva dynasty. He was Originally an Amatya (minister) of last Sunga ruler devabhuti.

Pushyamitra Sunga belonged to Brahmin Varna. He was the Commander-in-Chief of last Mauryan ruler Brihadratha. He Assassinated Brihadratha and established

the Sunga dynasty on the throne of Magadhan Empire. He was the contemporary of Patannjali.

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

**GENERAL INTELLIGENCE & REASONING**

1. (1)  $(16 - 7)^2 = 81$   
 $(24 - 16)^2 = 64$

Similarly,  
 $(13 - 7)^2 = 36$

2. (1)  $\begin{array}{ccccccc} 67 & 46 & 24 & 1 & -23 & -48 \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ -21 & -22 & -23 & -24 & -25 & \end{array}$

3. (3)  
4. (3)  $19 \times 4 - 8 = 68$   
 $21 \times 4 - 8 = 76$

Similarly,  
 $43 \times 4 - 8 = 164$

5. (4) COMMUNITY  
Y I T U N M C O M  
A U T H O R I T Y  
Y I T O R H A U T

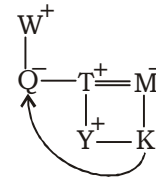
Similarly,  
I S O L A T I O N  
N I O A T L I S O

6. (3)  
BOTTLE place value adding  $(2+15+20+20+12+5) \times 2 = 148$   
SIPPER place value adding  $(19+9+16+16+5+18) \times 2 = 166$   
Similarly,  
BUMPER place value adding  $(2+21+13+16+5+18) \times 2 = 150$

7. (3) A C C U S E D  
U C C A S D E  
F A C T O R Y  
T C A F O Y R

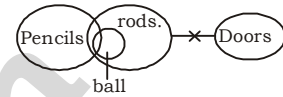
Similarly,  
D Y N A M I C  
A N Y D M C I

8. (4)  
9. (3) W & Q # T & Y @ M % K.



Father's Sister

10. (2) The possible venn diagram is



Only conclusions i and ii follow

11. (3) Rice break carbohydrates same way. Cottage cheese break Protein.

12. (2) N T R  
+6↓ +9↓ +13↓  
T C E  
+6↓ +9↓ +13↓  
Z L R  
+6↓ +9↓ +13↓  
F U E  
+6↓ +9↓ +13↓  
L D R

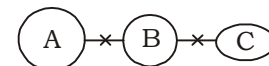
13. (3) D B K  
+3↓ +2↓ +1↓  
G D L  
+3↓ +2↓ +1↓  
J F M  
+3↓ +2↓ +1↓  
M H N  
+3↓ +2↓ +1↓  
P J O

14. (4)  
15. (1) by hit and trial method  
 $P + Q \times R$



P is the father of R

16. (1) Possible venn diagram is



Neither conclusion follows

17. (1)  $4 \div 2 + 3 - 6 \times 5 = -14$   
interchanging 4 and 6  
 $6 \div 2 + 3 - 4 \times 5 = -14$   
 $3 + 3 - 20 = -14$   
 $-14 = -14$
18. (1)  
 $14-28-42 \rightarrow 14 \times 2 \ 28 \times 2 \ 56$  — odd  
 $16-32-64 \rightarrow 16 \times 2 \ 32 \times 2 \ 64$   
 $18-36-72 \rightarrow 18 \times 2 \ 36 \times 2 \ 72$   
 $12-24-48 \rightarrow 12 \times 2 \ 24 \times 2 \ 48$
19. (2) 16, 96  $\rightarrow$  both are divisible by 8 and 18  $\rightarrow$ , 120 both are divisible by 6 Similarly, 161 is divisible by 7 and only in option (2) 21 is divisible by 7.
20. (1)  $50 \times 10 \times 20 \times 5 \times 105$   
Putting  $\div, \times, +, =$   
 $50 \div 10 \times 20 + 5 = 105$   
 $50 \times 20 + 5 = 105$   
 $100 + 5 = 105$   
 $105 = 105$
21. (1) The order of words in a dictionary is  
5. overweening  
4. overweight  
3. overwhelming -third position
1. overwork  
2. overwrought
22. (4) By hit and trial method  
 $28 + 7 \times 10 \div 5 - 20 = 5$   
interchanging 5 and 10, + and  $\div$   
 $28 \div 7 \times 5 + 10 - 20 = 10$   
 $4 \times 5 - 10$   
 $20 - 10 = 10$   
 $10 = 10$  (correct equation)
23. (4) P -1 O -1 N -1 M  
E -1 D -1 C -1 B  
S -1 R -1 Q -1 P  
B -3 Y +3 X -1 W — odd
24. (2)  
25. (3)  
1. (1) 2. (1) 3. (3) 4. (3) 5. (4)  
6. (3) 7. (3) 8. (4) 9. (3) 10. (2)  
11. (3) 12. (2) 13. (3) 14. (4) 15. (1)  
16. (1) 17. (1) 18. (1) 19. (2) 20. (1)  
21. (1) 22. (4) 23. (4) 24. (2) 25. (3)
2. (1) "are reflective of the level of job satisfaction" is correct substitute.  
("Present tense" is used for a general conclusion and "are" for the plural subject).
7. (1) "Hierarchical" is wrongly spelt.  
Meaning- Of the nature of a hierarchy; arranged in order of rank. (वर्गीकृत, पदानुक्रमिक)
9. (2) remove "was". "The man who committed" is correct expression.
14. (2) "was sitting beside his" is correct substitute.  
Beside- next to somebody/ something.  
Besides- in addition to or as well as somebody/ something; also
1. (4) 2. (1) 3. (3) 4. (2) 5. (2)  
6. (2) 7. (1) 8. (2) 9. (2) 10. (4)  
11. (3) 12. (4) 13. (3) 14. (2) 15. (1)  
16. (3) 17. (1) 18. (1) 19. (3) 20. (4)  
21. (2) 22. (4) 23. (1) 24. (3) 25. (3)

### ENGLISH LANGUAGE AND COMPREHENSION

1. (4) change "warn" into "warned". The sentence is in Passive Voice (has been V<sub>3</sub>)

| Words            | Meaning in English  | Meaning in Hindi  |
|------------------|---|---|
| Blurred          | characterized by dimness, indistinctness, or obscurity  | धुंधला  |
| Contemporary     | Of the same time.   | समकालीन   |
| Evocative        | evoking or tending to evoke an especially emotional response  | विचारोत्तेजक  |
| Fuzzy            | not clear, difficult to perceive; indistinct or vague.<br><i>Ex:- Without my glasses everything looks fuzzy.</i>                            | अस्पष्ट, धुंधला   |
| Jocund           | Cheerful, happy   | खुश   |
| Morose           | bad-tempered, and not saying much to other people<br><i>Syn. gloomy, murky, bleak, cheerless.</i><br><i>Ant. jocund, cheerful, excited.</i> | बदमिजाज, चिड़चिड़ा  |
| Metaphoric Utter | like a metaphor, figurative<br><i>(as noun)</i> complete; total<br><i>(as verb)</i> -to say something or make a sound with your voice       | रूपक, लाक्षणिक<br>पूरा, पूर्ण<br>कुछ कहना या आवाज निकालना |
| Unsoiled         | Not dirty or stained<br><i>Ant. filthy</i>  | बेदाग, साफ-सुथरा  |
| Vivid            | having or producing a strong, clear picture in your mind.<br><i>Syn. evocative, delineate.</i>  | सजीव और सुस्पष्ट (प्रभाव होने व उत्पन्न करने वाला)        |