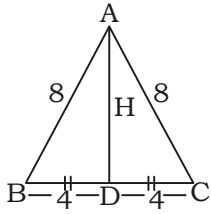


QUANTITATIVE APTITUDE

1. (4)



We know that,

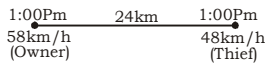
$$H = \frac{\sqrt{3}}{2} a$$

$$H = \frac{\sqrt{3}}{2} \times 8 = 4\sqrt{3}$$

2. (4) Distance between owner

and thief is = $48 \times \frac{1}{2} = 24$

km



Relative speed of thief and Bike owner is $\Rightarrow (58 - 48) = 10\text{km/h}$

The bike owner catch him in

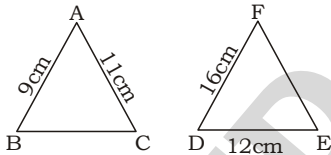
$$= \frac{24}{10} = 2 \frac{4}{10} = 2\text{h } 24\text{m}$$

The thief will be caught at

$$= 1:00\text{pm} + 2\text{h} + 24\text{m}$$

$$= 3 : 24 \text{ P.M.}$$

3. (3) $\triangle ABC \sim \triangle FDE$



$$\frac{AB}{BC} = \frac{FD}{DE}$$

$$\Rightarrow \frac{9}{BC} = \frac{16}{12} \Rightarrow BC = 6 \frac{3}{4} \text{ cm}$$

4. (1) Volume of cylinder = $\pi r^2 h$

Let $r_1 = x,$

$$r_2 = 4x,$$

$$h_1 = 4y,$$

$$h_2 = 3y,$$

The ratio of volumes will be

$$= \pi r_1^2 h_1 : \pi r_2^2 h_2$$

$$= \pi \times x^2 \times 4y : \pi \times 16x^2 \times 3y$$

$$= 1 : 12$$

5. (3) $x + \frac{1}{x} = 2\cos \theta$

Cubing both side

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = (2 \cos \theta)^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3 \times 2\cos\theta = 8 \cos^3\theta$$

$$\Rightarrow x^3 + \frac{1}{x^3} = 8\cos^3\theta - 6 \cos\theta = 2(4\cos^3\theta - 3\cos\theta) = 2\cos 3\theta$$

6. (1) $A + B \rightarrow 6$ $\rightarrow 2$ $\rightarrow 12$

$$A + B + C \rightarrow 4$$

Efficiency of C $\Rightarrow 3 - 2 = 1$
C alone can complete the

$$\text{work} = \frac{12}{1} = 12 \text{ days}$$

7. (4) The total expenditure of all these 7 articles are = 3600 ATQ,

$$360^\circ \equiv 3600$$

$$1^\circ \equiv 10$$

The average expenditure incurred on article P and Q is

$$\frac{70 + 120}{2} = 95^\circ$$

$$\text{So, } 1^\circ \equiv 10$$

$$95^\circ \equiv 950$$

The average expenditure included on article P and Q is 950.

8. (4) $\sin^4 \theta + \cos^4 \theta$

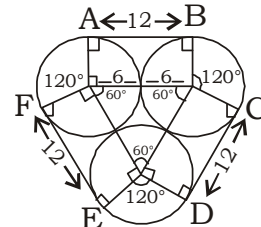
$$= \sin^4 \theta + (\cos^2 \theta)^2$$

$$= \sin^4 \theta + (1 - \sin^2 \theta)^2$$

$$= \sin^4 \theta + 1 + \sin^4 \theta - 2\sin^2 \theta$$

$$= 2\sin^4 \theta - 2\sin^2 \theta + 1$$

9. (1)



Length of string

$$= (AB + CD + EF) + (BC + DE + FA)$$

$$= (12 + 12 + 12) + 3 \times 2\pi \times \frac{\theta}{360}$$

$$= 36 + 6\pi \times 6 \times \frac{120}{360}$$

$$= 36 + 12\pi$$

10. (3) $x = 3 + 2\sqrt{2}, x > 0$

$$\Rightarrow x = 3 + 2\sqrt{2}$$

$$\Rightarrow x = (\sqrt{2})^2 + (1)^2 + 2\sqrt{2} \times 1$$

$$\Rightarrow x = (\sqrt{2} + 1)^2$$

$$\Rightarrow \sqrt{x} = \sqrt{2} + 1 \dots 1$$

$$\frac{1}{\sqrt{x}} = \frac{1}{\sqrt{2} + 1} \times \frac{\sqrt{2} - 1}{\sqrt{2} - 1} = \sqrt{2} - 1$$

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

11. (2) According to the question

$$100\% = 32760000$$

$$1\% = 327600$$

$$\text{Population of Goa} = 327600 \times 12$$

$$\text{Population of Arunachal Pradesh}$$

$$= 327600 \times 25$$

$$\text{Ratio of Goa and Arunachal Pradesh in 1997}$$

$$= \frac{327600 \times 12 \times 100}{120} : \frac{327600 \times 25 \times 100}{110}$$

$$= 11 : 25$$

12. (3) Given

$$SI = 9600$$

$$\text{Time (t)} = 5 \text{ years}$$

$$\text{Rate of Interest (r)} = 16\%$$

ATQ,

$$\frac{P \times 16 \times 5}{100} = 960$$

$$\Rightarrow P = 12000$$

13. (1) $\tan(\theta - 14\pi)$

$$= -\tan(14\pi - \theta) = -\tan(7 \times 2\pi - \theta)$$

$$= -(\tan \theta) = \tan \theta$$

14. (3) $\frac{7^{42}}{48}$

$$= \frac{(7^2)^{21}}{48} = \frac{(49)^{21}}{48} \Rightarrow \frac{(1)^{21}}{48} \Rightarrow 1]$$

The remainder is 1.

15. (4) $100\% \rightarrow 360^\circ$

$$1\% \rightarrow \left(\frac{36^\circ}{10}\right)$$

industries — 25%

$$25\% \rightarrow \frac{36}{10} \times 25 = 90^\circ$$

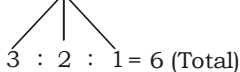
$$16. (4) P = 150 \times \frac{115}{100}$$

$$K = 150 \times \frac{115}{100} \times \frac{85}{100} = 146.625$$

17. (3) HCF of 36, 198 is 18.

18. (2) Rate of diamond \times (weight)²
Now

diamond break



3 : 2 : 1 = 6 (Total)

According to the question
 $6^2 = 36$

$$3^2 + 2^2 + 1^2 = 14$$

difference = 22 unit

$$36 \text{ unit} \equiv 6084$$

$$1 \text{ unit} \equiv 169$$

$$22 \text{ unit} \equiv 169 \times 22 = 3718$$

So, the loss involved in the cutting 3718.

19. (1) Given

Marked price of an article = 10927

$$\text{discount}\% = \frac{1127}{10927} \times 100 =$$

$$10.3\%$$

According to the question

$$111.5\% \equiv 10927$$

$$100\% \equiv 9800$$

$$\text{discount} = 10927 - 9800$$

$$= 1127$$

So, the percentage of discount

$$= \frac{1027}{10927} = 10.3$$

$$20. (4) x + \frac{1}{x} = -2$$

Putting $x = -1$

$$x^{17} + x^{-17} + x^{12} + x^{-12}$$

$$= (-1)^{17} + \frac{1}{(-1)^{17}} + (-1)^{12} + \frac{1}{(-1)^{12}}$$

$$= -1 - 1 + 1 + 1 = 0$$

$$21. (2) \text{Mean proportion} = \sqrt{ab}$$

$$= \sqrt{(6 + \sqrt{8}) \times (3 - \sqrt{2})}$$

$$= \sqrt{18 - 6\sqrt{2} + 6\sqrt{2} - 4} = \sqrt{14}$$

22. (1) Given

$$x - y = 1$$

$$x^2 + y^2 = 41$$

We know,

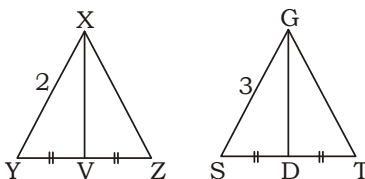
$$(x + y)^2 + (x - y)^2 = 2(x^2 + y^2)$$

$$\text{then, } (x + y)^2 + (1)^2 = 2 \times 41$$

$$\Rightarrow (x + y)^2 = 81$$

$$\Rightarrow x + y = 9$$

23. (1) $\Delta XYZ \sim \Delta GST$



ATQ,

$$\frac{XY}{GS} = \frac{YV}{SD}$$

$$\Rightarrow \frac{2}{3} = \frac{YV}{SD}$$

$$\Rightarrow \left(\frac{YV}{SD}\right)^2 = \frac{4}{9}$$

24. (1) Let, total distance — 100

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$= \frac{100}{\frac{40}{40} + \frac{50}{25} + \frac{10}{10}} = \frac{100}{1 + 2 + 1}$$

$$= 25 \text{ km/h}$$

25. (3) The ratio of production of refrigerator by company G to the production of refrigerator by company I is = 260 : 220 = 13 : 11

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

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

11. (2) 12. (3) 13. (1) 14. (3) 15. (4)

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

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

GENERAL AWARENESS

1. (4) Ghari - House tax
Chari - Pasture tax
Jizya - Poll tax
Kharai - land tax

2. (1) Rock dam - Small barriers of stone and sand across a drainage, to reduce erosion.
Shelter belts - rows of trees usually along fence lines.
Contour barriers - contour strips that intercept downslope flowing water and soil particles.

3. (4) Department of Sports was founded in 1982 and founded as Ministry of Youth Affairs and Sports on 27th May, 2000. Anurag Thakur is the Minister. Nisith Promanik is the Minister of State's.

4. (3) Xylem - Transports water from roots to stem and leaves.

Sclerenchyma is a plant tissue providing mechanical stiffness and strength Ex:- cortex, phloem, the pulp of fleshy fruits, fruit walls and seed coats.

Collenchyma - The stands in celery stalks. (अजवाइन के डंठल)
Parenchyma - in pith and cortex of stems and roots, mesophyll of leaves, the flesh of succulent fruits, in the endosperms of seeds.

5. (2) Plant cells go through both mitosis and meiosis.

6. (1) Dr. Virendra Kumar and Smt. Anandi Ben Patel launched the Dr. Ambedkar Centres of Excellence (DACE) scheme from Banaras Hindu University, Varanasi. It was started in 31 Universities. It aims to provide free coaching to SC's students for UPSC. 100 seats were sanctioned for each coaching centre.

7. (4) International Day of non-Violence has been celebrated on 2nd October the Birthday of Mahatma Gandhi since 2007.

Rajendra Prasad - 3rd Dec (138th)

Subhash Chandra Bose - 23rd Jan.

(Parakram Divas) For first time it was celebrated in on his 124th birth anniversary.
Jawaharlal Nehru - 14 Nov (Children's day)

8. (4)

Bipin Chandra Pal	The Soul of India, Swadeshi and Swaraj, An Introduction of study of Hinduism
Muhammad Ali-Jinnah	Bharat Vibhajan Ke Time Mein, The Nations Voice, Eye witnesses of History.
Surendra Nath Banerjee	The Nation in Making

9. (4) Pandit Venkatesh Kumar (vocalist) got Kalidas Samman in 2022 given by Madhya Pradesh Govt.

10. (2) Five Indians who won Oscars: - Bhanu Athaiya - Best Costume Design (Gandhi, 1983)
Satyajit Ray - Honorary Award (1992)

Resul Pookutty - Best Sound mixing (Slumdog, 2009)
 Gulzar - Best Original Song (Slumdog, 2009)
 A.R. Rahman - Best Original Score and Best original song (Slumdog, 2009)
 A.R. Rahman won Golden Globe award for Best original music score for Danny Boyle's Slumdog Millionaire.

11. (4)

Andes Mountains separates - Chile and Argentina
 Alps separates - France from Italy and Switzerland.

12. (4) Highest - Kerala (93.9%), Lakshadweep (92.3%), Mizoram (91.6%)
 Lowest - Bihar (63.8%), Arunachal Pradesh (67%), Rajasthan (67.1%)

13. (3)

14. (3) Pachnada is the confluence of five rivers: Kunwari, Pahuj, Yamuna, Chambal and Sind.

Panjnad (Panchnad) is confluence of Jhelum, Chenab, Ravi, Beas and Sutlej.

15. (1) French Open, 2022 (2nd May to 5 June) winners:-

Men's Singles - Rafael Nadal
 Women's Singles - Iga Swiatek (Poland)

Men's doubles - Marcelo Arevalo (El Salvador) and Jean-Julien Rajer (Netherlands)

Women's doubles - Caroline Garcia (USA) and Kristina Mladenovic (France).

16. (3)

State	National Park
Gujarat	Gir, Vanşda, Marine, Blacbuk
Rajasthan	Ranthambore, Desert, Keoladeo, Darrah
Punjab	Abohar, Harike Wetland, Bir B h a d s o n , Jhajjar Bachauli
Maharashtra	Tadoba-Andhari, Sanjay Gandhi, N a w e g a o n , C h a n d o l i , Gugamal.

17. (2) Unsaturated hydrocarbons can be classified into alkenes, alkynes and aromatic.

18. (2)

19. (2)

20. (3) Lothar Meyer - He was the first person to recognise the periodic trends in the properties of elements.

Dmitri Mendeleev formulated the Periodic Law and created a version of Periodic table of elements.

Johann Dobereiner invented the first lighter, which was known as Dobereiners lamp. He also directed attention that the atomic weight of Strontium is the mean of those of Calcium and Barium.

21. (1) 22. (2) 23. (2)

Union Minister for Education	Dharmendra Pradhan
Union Minister for Women and Child Development	Smriti Irani
Union Minister for Law and Justice	Kiren Rijju
Union Minister for Health and Family Welfare	Mansukh L. Mandaviya

24. (3)

25. (3) Aurangzeb (1658-1707) was the 6th emperor of Mughal Empire. During his reign Mughals reached their greatest extent with their territory. Death of Aurangzeb occurred at Ahmednagar. He had highest number of Hindus as Mansabdars. His tomb is in Khuldabad.

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

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

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

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

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

GENERAL INTELLIGENCE & REASONING

1. (3) $F+3, I+3, L+3, O$
 $H+3, K+3, N+3, Q$
 $G+3, J+3, M+3, P$

2. (1)

3. (2)

4. Verse
 3. Versicolour
 1. Version
 5. Verso
 2. Versus

4. (1) $23 * 2 * 2 * 5 * 18$
 Putting $-, \div, \times, =$
 $23 - 2 \div 2 \times 5 = 18$
 $\Rightarrow 23 - 1 \times 5 = 18$
 $\Rightarrow 23 - 5 = 18$
 $\Rightarrow 18 = 18$

5. (1)

6. (2) $E A C H$ and $G A M A$
 $A E H C$ $A G E M$

Similarly, $I D O L$
 $D I L O$

7. (3) $A N H S$, $J E O J$
 $+7$ $+7$

$J P R T$ $P Y W D$
 $+4$ $+5$
 $+8$ $+7$

8. (4) $7 \times 6 - 4 + 9 \div 3 = -7$
 interchanging, \times and $+$, 6 and 4 then,
 $7 + 4 - 6 \times 9 \div 3 = -7$
 $\Rightarrow 11 - 6 \times 3 = -7$

$\Rightarrow 11 - 18 = -7 \Rightarrow -7 = -7$

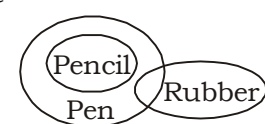
9. (1) $26 + 34 = 60 \times 2 = 120$
 $14 + 41 = 55 \times 2 = 110$
 $36 + 17 = 53 \times 2 = 106$

10. (3) $L A P T O P$ and
 -2 -2 -2 -2 -2 -2
 $J Y N R M N$

$C O L D$
 -2 -2 -2
 $A M J B$
 Similarly,

$S K E T C H P E N$
 -2 -2 -2 -2 -2 -2 -2 -2
 $Q I C R A F N C L$

11. (1)

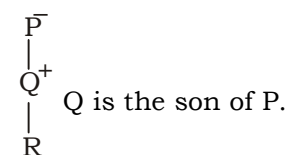


12. (3) From fig i and iii

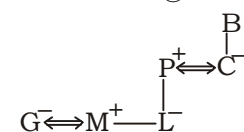
$$2 < \frac{6-3}{4-1} \quad 3 \leftrightarrow 1$$

13. (1) $\frac{26}{\downarrow+2} \frac{54}{\downarrow+2} \frac{110}{\downarrow+2} \frac{222}{\downarrow+2} \frac{446}{\downarrow+2} \frac{894}{\downarrow+2}$

14. (2) $P - Q \times R$



15. (2) $G \% M \# L @ P \& C @ B$



L is Grand daughter of B.

16. (2) $I N N E R$ $G L A S S$ $M O D E L$
 opposite+ \downarrow \downarrow \downarrow
 $S N N W J$ $U P A I I$ $O M X W P$

17. (1) $30 = 5 \times 6$, $60 = 5 \times 12$
 $48 = 8 \times 6$ $96 = 8 \times 12$
 and, $45 = 5 \times 9$
 $72 = 8 \times 9$

18. (4) Except option (4) All are antonyms of each other.

19. (3) $(13)^2 - 10 = 169 - 10 = 159$
 $(9)^2 - 10 = 81 - 10 = 71$
 $(5)^2 - 10 = 25 - 10 = 15$

$(17)^2 - 10 = 289 - 10 = 279$

20. (2) $8 \times 6 = 12 \times 4$

$9 \times 8 = 18 \times 4$

$12 \times 8 = 24 \times 4$

21. (4) $72 \div 8 \times 9 - 36 + 20 = 80$

interchanging 8 and 9, + and -

$72 \div 9 \times 8 - 36 + 20 = 80$

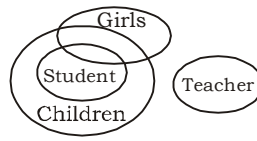
$\Rightarrow 8 \times 8 + 16 = 80$

$\Rightarrow 64 + 16 = 80$

$\Rightarrow 80 = 80$

22. (1) $T \xrightarrow{+6} Z \xrightarrow{+6} F \xrightarrow{+6} L \xrightarrow{+6} R$
 $Q \xrightarrow{+2} S \xrightarrow{+2} U \xrightarrow{+2} W \xrightarrow{+2} Y$
 $T \xrightarrow{+8} B \xrightarrow{+8} J \xrightarrow{+8} R \xrightarrow{+8} Z$

23. (1)



24. (3) 25. (1)

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

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

11. (1) 12. (3) 13. (1) 14. (2) 15. (2)

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

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

ENGLISH LANGUAGE AND COMPREHENSION

1. (3) "awarded to best" is correct expression, means the most deserving actors.

2. (4) "wait for me" is correct term. Meaning - stay at same place unless/until someone

- comes.
4. (1) "Rhyme" is incorrectly spelt. Meaning - a word that has same sound as another.
5. (2) "judge" is wrongly spelt.
- i) a public official authorised to decide questions brought before a court. (न्यायमूर्ति).
- ii) to evaluate, to estimate. (मूल्यांकन करना या अनुमान लगाना)
6. (3) "often" goes" means- to visit frequently.
9. (2) "placed in the cupboards" is the correct expression.

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

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

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

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

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

Words

Attract

Elucidate

Embodies

Left no stone

Obligatory

Shrouds

Severe

Unturned

Wither

Voracious

Meaning in English

to cause somebody to go to something.

Syn. allure, charm, captivate

Ant. deter, repulse.

to make something clear by explaining it.

to represent in a physical or concrete form.

Syn. to incarnate, personify.

tried every possible course of action in order

something that you must do

Syn. compulsory, mandatory.

something that covers screens or guards, to

cover or hide something.

extremely bad or serious.

Syn. arduous, challenging.

Ant. gentle, playful.

Ex:- The storm caused severe damage to the roof.

to achieve something.

to become weaker and then disappear.

having a great appetite for anything such as

food, reading etc.

Meaning in Hindi

आकर्षित करना

स्पष्ट करना

साकार करना

कोई कसर नहीं छोड़ना

अनिवार्य

किसी वस्तु को ढकना

या छिपाना

कष्टप्रद

क्षीण होना

पेटू, अत्युत्सुक, लालची

