

QUANTITATIVE APTITUDE

1. (4) The total number of officers working in all the companies is
 $= 400+500+600+350+450+800$
 $= 3100$

2. (2) $\cos(A-B) = \frac{\sqrt{3}}{2}$, $\cos(A+B) = 0$,

$A - B = 30^\circ \dots(I)$

$A + B = 90^\circ \dots(II)$

eq (I)+ eq (II)

$2A = 120^\circ$

$A = 60^\circ$, $B = 30^\circ$

3. (4) Average speed

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

$= \frac{40 \times 3 + 30 \times 2 + 80 \times 5}{3 + 2 + 5}$

$= \frac{120 + 60 + 400}{10} \Rightarrow \frac{580}{10}$

$= 58 \text{ km/h}$

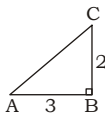
4. (2) Given, $x^2 + \frac{1}{x^2} = 66$

$\Rightarrow x^2 + \frac{1}{x^2} - 2 = 64$

$\Rightarrow \left(x - \frac{1}{x}\right)^2 = (8)^2$

$\Rightarrow x - \frac{1}{x} = 8$

5. (2) $\tan A = \frac{2}{3}$



$\tan A = \frac{2 \rightarrow \text{Perpendicular}}{3 \rightarrow \text{Base}}$

$AC = \sqrt{9+4} = \sqrt{13}$

$= \frac{\text{Perpendicular}}{\text{Hypotenous}} = \frac{2}{\sqrt{13}}$

6. (3) Let, work will be completed in x days.

ATQ,

$20 \times 220 = 20 \times 90 + 40 \times x$

$\Rightarrow 20 \times 130 = 40 \times x$

$\Rightarrow x = \frac{130}{2} = 65 \text{ days}$

7. (2) $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = \frac{3}{2}$,

$\Rightarrow \frac{\tan\theta + 1}{\tan\theta - 1} = \frac{3}{2}$

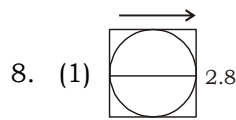
$\Rightarrow 3\tan\theta - 3 = 2\tan\theta + 2$

$\Rightarrow \tan\theta = 5$

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

$= -[\cos^2\theta - \sin^2\theta] - \cos 2\theta$
 $= \left[\frac{1 - \tan^2\theta}{1 + \tan^2\theta} \right] \Rightarrow -\left[\frac{1 - 25}{1 + 25} \right]$

$= \frac{24}{26} = \frac{12}{13}$



8. (1)

Side of cube = 2.8 cm

Volume of the sphere = $\frac{4}{3}\pi r^3$

Radius of sphere = $\frac{2.8}{2} = 1.4$

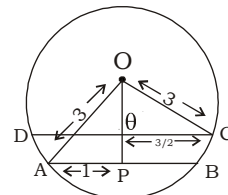
cm
 \therefore Required volume

$= \frac{4}{3} \times \frac{22}{7} \times 1.4 \times 1.4 \times 1.4$

$= \frac{34.496}{3} \Rightarrow 11.4986$

$= 11.50 \text{ cm}^3$

9. (2)



ATQ, In ΔOAP

$\Rightarrow OP^2 = AO^2 - AP^2$

$\Rightarrow OP^2 = 3^2 - 1^2$

$\Rightarrow OP = \sqrt{8} = 2\sqrt{2}$

In ΔOQC

$\Rightarrow OQ^2 = OC^2 - OC^2$

$\Rightarrow OQ^2 = 3^2 - \left(\frac{3}{2}\right)^2$

$\Rightarrow OQ = \sqrt{9 - \frac{9}{4}}$

$\Rightarrow OQ = \frac{3}{2}\sqrt{3}$

Now, $OP = 2\sqrt{2} - \frac{3\sqrt{3}}{2}$

$= \frac{4\sqrt{2} - 3\sqrt{3}}{2}$

10. (4) Given, $k + \frac{1}{k} = 4$

Squaring both side

$\Rightarrow k^2 + \frac{1}{k^2} + 2 = 16$

$\Rightarrow k^2 + \frac{1}{k^2} = 14$

Again, squaring both side

$\Rightarrow k^4 + \frac{1}{k^4} + 2 = 196$

$\Rightarrow k^4 + \frac{1}{k^4} = 194$

11. (1) The number of passing students in state B

$= 1.4 \times \frac{3}{7} \text{ Lakh}$

12. (4) ATQ,

$100\% = 1620 \text{ crores}$

$1\% = 16.2 \text{ crores}$

Difference between P and S
 $= 26 - 13 = 13\%$

$13\% = 210.6 \text{ crores}$

\therefore 210.6 crores money is spent on state P than on state S.

13. (2)

2	144, 360, 450
3	72, 180, 225
3	24, 60, 75
4	8, 20, 25
5	2, 5, 25
2	1, 5

\therefore LCM = $2 \times 3 \times 3 \times 4 \times 5 \times 2 \times 5$
 $= 3600$

14. (1) 1st discount = Rs. 85

successive discount = 10%,
 2%

MP = 1285

$SP = (1285 - 85) \times \frac{90}{100} \times \frac{98}{100}$

$= 1200 \times \frac{9}{10} \times \frac{98}{100}$

$= \frac{108 \times 98}{10} = 1058.4$

15. (1) ATQ, $88\% = 46068$

$$118\% = \frac{46068 \times 118}{88}$$

$$= 61773$$

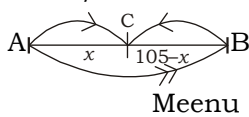
\therefore In Rs. 61773 will she have to sell it to get a profit of 18%.

16. (1) $\frac{123456789}{9}$

Digital sum = $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = \frac{9 \times 10}{2} = 45$

$\frac{45}{9}$ Remainder = 0

17. (2) $A \xleftarrow{105 \text{ km}} B$
 $10 \text{ km/h} \quad 25 \text{ km/h}$



ATQ,

$$\frac{25}{10} = \frac{210 - x}{x}$$

$$\Rightarrow 5x = 210 \times 2 - 2x$$

$$\Rightarrow 7x = 420$$

$$\Rightarrow x = 60 \text{ km}$$

\therefore Distan = 60 km

18. (3) $36 : 81 :: x : 63$

$$\Rightarrow 81x = 36 \times 63$$

$$\Rightarrow x = 4 \times 7$$

$$\Rightarrow x = 28$$

19. (4) $\triangle ABC \sim \triangle DEF$

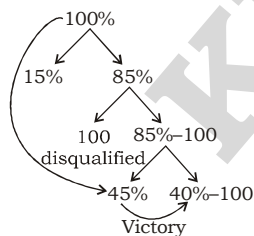
ATQ,

$$\Rightarrow \frac{BC}{EF} = \frac{AC}{DF}$$

$$\Rightarrow \frac{48}{200} = \frac{120}{DE}$$

$$\Rightarrow DE = 500 \text{ cm}$$

20. (1)



$$5\% + 100 = 400$$

$$5\% = 300$$

$$1\% = 60$$

$$100\% = 6000$$

21. (2) ATQ, So, the total number of votes is 6000

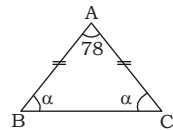
$$100\% = 360^\circ$$

$$10\% = 36^\circ$$

$$5\% = 18^\circ$$

\therefore Central angle for education $15\% = 54^\circ$

22. (2)



ATQ,

$$\Rightarrow \alpha + \alpha + 78 = 180^\circ$$

$$\Rightarrow 2\alpha = 102$$

$$\alpha = 51^\circ$$

23. (2) Rate of interest = 12% yearly, Time = 2 years

ATQ,

Half yearly rate of interest

$$= 6\% \Rightarrow \frac{3}{50}$$

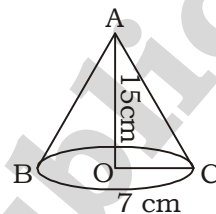
50	:	53
50	:	53
50	:	53
50	:	53

$$6250000 : 7890481$$

\therefore Required present value is :

$$= \frac{6250000 \times 10000}{789048} = 7920.90$$

24. (4)



Volume of cone = $\frac{1}{3} \times \pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 15$$

$$= 110 \times 7 = 770 \text{ cm}^3$$

Given, the weight of the iron per cubic centimetre is 16 g.

Weight of vessel

$$= \frac{770 \times 15}{1000} \text{ kg}$$

$$= 11.55 \text{ kg}$$

25. (4)

$$p+q = 6,$$

Cubing both side

$$p^3+q^3+3pq(p+q) = 216$$

$$\Rightarrow p^3+q^3 = 216-72$$

$$\Rightarrow p^3+q^3 = 144$$

$$\Rightarrow 3(p^3+q^3) = 432$$

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

GENERAL AWARENESS

1. (1) Buckminster fullerene is a type of fullerene with formula C_{60} . Each of its 60 carbon atoms is bonded to its three neighbours.

Fullerenes are stable with sp^2 hybridization. It is formed when C_{60} is oxidised.

2. (1) The range of pH is from 0 - 14. pHs less than 7 is acidic and pHs of greater than 7 is basic, pH is really a measure of the relative amount of free hydrogen and hydroxyl ions in the water.

3. (3)

4. (3) As of 2022, the fastest train in India is Vande Bharat Express with speed of 180km/hr while the fastest operating train is the Gatimaan Express with speed of 160km/hr.

The first high-speed railway corridor of length 508 km is currently under construction between Mumbai and Ahmedabad with speed of 320km/hr.

5. (1)

6. (2) Some 2021 Awardees - Sumitra Mahajan, S.P Balasubrahmanyam, Mripendra Mishra, Tarlochan Singh, Tarun Gogoi, etc.

Some 2022 awardees - Gurmeet Bawa, Sawami Sachidanand, Prabha Atre, Gulam Nabi Azad, Bipin Rawat, Sunder Pichai, Satya Nadella, etc.

7. (1) Hardik Pandya - Reliance Retail

Yuvraj Singh - The Cricket Association for the Blind in India (CABI).

Puma's India roaster of Ambassadors include Virat Kohli and Mary Kom.

8. (4) Delhi Police launched three new digital initiatives - Anubuti, a QR Code based feedback system

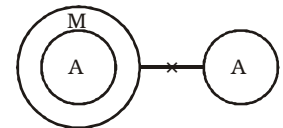
Delhi Police website and e-chittha Portal

9. (1) The All India Depressed Classes Association was established by Dr. B.R. Ambedkar in 1930 to make a fair representation of SCs in the decision making bodies of India. He participated in Second Round Table Conference as the representative of the Association.
10. (1) 3 Cities in India, Bhubneswar, Margao and Mumbai hosted the FIFA U-17 Women's World Cup. Spain won the World Cup by defeating Columbia in Final, at Mumbai. In 2014, it will be held at Chile.
11. (3)
12. (4) Narmada and Tapi rives flow through the rift valley. Son and Koshi are the tributaries of Ganga river. Luni - It is first known as Sagarwati, then after passing Govindgarh, it meets its tributary Sarasvati and then it called Luni.
13. (2) Frictional unemployment is a temporary situation when workers go unemployed to find a new job after quitting the previous one. Structural unemployment caused by a mismatch between the skills workers in economy can offer and the skills demanded from workers by the employers.
14. (2)
15. (1) Sharodi Saikia received the Sangeet Natak Akadami Award in 2015. In 2022, the Department of Cultural Affairs, Government of Assam awarded the dancer the Bishnu Rabha Award Minister of Cultural Affairs - G. Kishan Reddy.
16. (3) Kumkum Mohanty was awarded with Guru Mahapatra award (2011), Padma Shri (2005), Sangeet Natak Akademi (1994), Odisha Sangeet Natak Akademi (1993).
17. (4)
18. (3) Fazal Ali Commission (1953) - To Study the State autonomy and Centre-State relations. It was comprised Fazal Ali, K.M. Pannikar and H.N Kunzru. The Mandal Commission or the Socially and Educationally Backward Classes Commission (SEBC), was established in India in 1979 by the Janata Party government under Prime Minister Morarji Desai with a mandate to "identify the socially or educationally backward classes" of India. It was headed by B.P. Mandal, Sarkaria Committee was set up in 1983. It was headed by Ranjeet Singh Sarkaria and member are B.S. Sivaraman, Dr. S.R. Sen and Rama Subramanyam.
19. (3) Tamil Nadu has Mudumalai Tiger Reserve, Guindy National Park, Anaimalai Tiger Reserve, Mukurthi National Park, Gulf Mannar Marine National Park, Bandipur National Park.
20. (2) The Ilbert Bill was a legislative act introduced in 1883 during the tenure of Viceroy Ripon and written by Sir Courtenay Pergine Ilbert. The act stipulated that Indian judges could try Europeans.
21. (3) Ali-ai- Ligang celebrated by Mishing tribal people of Assam on the occasion of the beginning of Adu Paddy cultivation. Me-Dum-Me-Phi is the ancestor worship communal festival in ahom religion celebrated on 31 January in memory of departed.
22. (4) Alluvial soils are formed due to the silt deposited by the Indo - G a n g e t i c - Brahmaputra rivers. In the coastal area, the alluvial soil is formed due to the wave action.
- Laterite soil is formed in the parts where dry and wet weather occurs repeatedly. Red, Soil is suitable for crops such as wheat, pulses, millets, fruits, potatoes etc.
23. (4) ICC Women's T-20 World Cup known as the ICC Women's World T-20 until 2019. 2023, ICC T-20 World Cup will be held in South Africa.
24. (1) PH_3 - Phosphine
25. (4) Samaharta - To Collect Revenue
Uparika - To Administer Justice
Ashoka was the third emperor of Maurya Empire during 268 BCE to 232 BCE. His capital was Patliputra. He was known as Priyadarshini, Devanapriya and Chakravartin.

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

GENERAL INTELLIGENCE & REASONING

1. (3) The possible venn diagram is

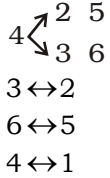


- Only conclusion 1 follows
2. (1) $(56+22)/3 = 26$
 $(34+20)/3 = 18$
 $(78+54)/3 = 44$
3. (2)
- | | | | |
|----------|----------|----------|----------|
| C | B | O | M |
| ↓+3 | ↓+1 | ↓+2 | ↓+1 |
| F | C | O | N |
| ↓+3 | ↓+1 | ↓+2 | ↓+1 |
| I | D | S | O |
| ↓+3 | ↓+1 | ↓+2 | ↓+1 |
| L | E | U | P |
| ↓+3 | ↓+1 | ↓+2 | ↓+1 |
| O | F | W | Q |
4. (4) The right answer is 4
5. (1) $\left(\frac{21+9}{2}\right)^2 = 225$

$$\left(\frac{12+2}{2}\right)^2 = 44$$

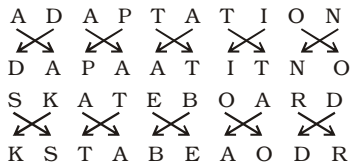
$$\left(\frac{14+2}{2}\right)^2 = 64$$

6.(4) From fig (2) to fig (3)

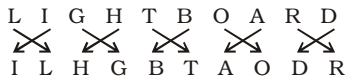


7.(3)

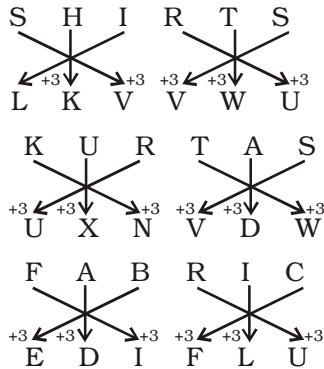
8.(2)



Similarly



9.(2)

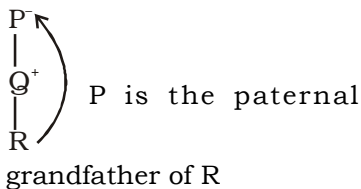


10.(2) Interchange

- + and ×
5 and 4
- (I) $4+8 \times 5-7 \div 1 = 37$
 $5 \times 8+4-7 \div 1 = 37$
 $40+4-7 = 37$
 $37 = 37$
- (II) $5 \times 3-4+6 \div 2 = -8$
 $4+3-5 \times 6 \div 2 = -8$
 $7-15 = -8$
 $-8 = -8$

11.(4) By hit and trial method

$P \times Q - R$



12.(2) $3, 13, 53, 213, 853, 3413$
 $\times 4+1 \quad \times 4+1 \quad \times 4+1 \quad \times 4+1 \quad \times 4+1$

13.(3)

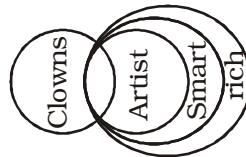
14.(2) $137-142-147 \rightarrow 137^{+5} 142^{+5} 147$

$177-122-129 \rightarrow 177^{-55} 122^{+5} 129$

$103-108-113 \rightarrow 103^{+5} 108^{+5} 113$

$131-136-141 \rightarrow 131^{+5} 136^{+5} 141$

15.(3) The possible venn diagram is



Both conclusions (i) and (ii) follows

16.(3) By hit and trial method

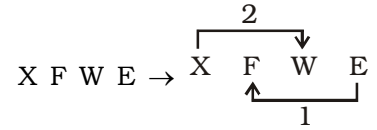
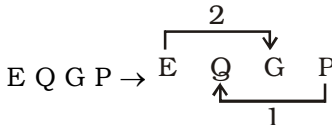
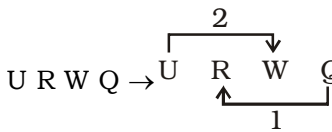
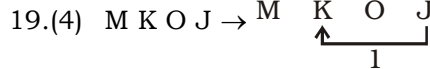
$60 \times 3 + 660 \div 6 - 120 = 290$
 $20 + 3 \times 660 \div 6 - 60 = 290$
 $20 + 3 \times 110 - 60 = 190$
 $20 + 330 - 60 = 290$
 $290 = 290$

17.(4) The order in a dictionary is.

- Order 3, 1, 4, 5, 2
3. Perincious
 1. Perpend
 4. Perpetrate
 5. Perpetual
 2. Perplex

18.(1) By hit and trial method

$81+3 \div 9 \times 5-12 = 60$
 $81 \div 3+9 \times 5-12 = 60$
 $27+45-12 = 60$
 $60 = 60$



...odd

20.(2) N M R

$\downarrow +3 \quad \downarrow -7 \quad \downarrow +8$

Q F Z

$\downarrow +3 \quad \downarrow -7 \quad \downarrow +8$

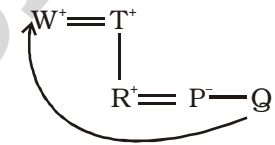
W R P

$\downarrow +3 \quad \downarrow -7 \quad \downarrow +8$

Z K X

21.(1) S & T % R @ P # Q,

S related to P



Mother-in-law

22.(2)

23.(3) The right answer 3.

24.(2) $(76-75)^2 = 1$

$(90-87)^2 = 9$

$(56-48)^2 = 64$

25.(1)

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

ENGLISH LANGUAGE AND COMPREHENSION

3. (1) "laparoscopy" is wrongly spelt here.

Meaning - a visual examination of the abdomen by means of a laparoscope.

4. (3) replace "been" with "being" to make correct Past Continuous Sentence in Passive Voice.

16. (1) "Children" is a plural noun. So it takes a plural verb "listen".

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

Words	Meaning in English	Meaning in Hindi
Abundant	existing or occurring in large amounts <i>Syn. Ample, aplenty, bounteous, bountiful, cornucopian, plentiful, plenty</i> <i>Ant. Bare, minimal, scant, spare.</i>	बहुत, प्रचुर मात्रा में उपलब्ध
Catastrophe	A momentous tragic event ranging from extreme misfortune to utter overthrow or ruin <i>Syn. bummer, bust, debacle, disaster, dud, failure, fiasco, washout</i>	प्रलय, महाविपत्ति
Credible	offering reasonable grounds for being believed <i>Syn. Believable, creditable, likely, plausible, presumptive</i> <i>Ant. Far-fetched, implausible, improbable, incredible, unbelievable, unlikely.</i>	विश्वसनीय
Degradation	1. The act of reducing in rank, character, or reputation, or of abasing; a lowering from one's standing or rank in office or society 2. (geology) A gradual wearing down or wasting, as of rocks and banks, by the action of water, frost etc. <i>Syn. Abjection, debasement, decadence, decadency, degeneracy, degeneration, demoralization, depravity, dissipation, dissoluteness, perversion, rakishness, turpitude.</i> <i>Ant. Ascent, rise, upswing, inclination.</i>	बदनामी, निम्नीकरण, अपकर्ष, मान भंग अवक्रमण, पतन, अवनती
Expedient	suitable for achieving a particular end in a given circumstance. <i>Syn. Advisable, desirable, judicious, politic, prudent, tactical</i>	योग्य, व्यावहारिक, उपाय
Getting cold feet	To suddenly feel nervous about doing something that you have planned or agreed to do.	ऐन मौके पर डर जाना
Imprudent	not wise, lacking discretion, wisdom, or good judgment. <i>Syn. injudicious, tactless, undiplomatic, unwise.</i> <i>Ant. advisable, discreet, judicious, prudent, tactful, wise.</i>	अविवेकपूर्ण, उद्धत
Intermittent	coming and going at intervals, not continuous. <i>Syn. Aperiodic, casual, discontinuous, irregular, occasional, spasmodic, spastic, sporadic, spotty, unsteady</i> <i>Ant. Constant, continuous, habitual, periodic, regular.</i>	आंतरायिक, बीच बीच में होने वाला
Impending	occurring or likely to occur soon <i>Syn. Approaching, coming, forthcoming, imminent, nearing, oncoming, pending, proximate, upcoming</i> <i>Antonyms- Late, procrastinated</i>	आसन्न, संभवतः होने वाला
Minimal	The smallest possible amount, quantity, or degree <i>Syn. Fewest, little, lowest, minimum, minutest, slightest, smallest, tiniest</i> <i>Ant. Biggest, full, greatest, largest, huge maximum, most, top, topmost, utmost.</i>	अल्पतम, छोटे से छोटा
Spurious	False, not authentic, not genuine. <i>Syn. counterfeit, fake, false, bogus, illegitimate</i> <i>Ant. genuine, representative, authentic.</i>	अवैध, मिथ्या, जाली, गलत, झूठा