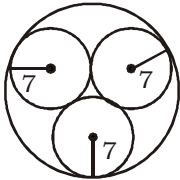


QUANTITATIVE APTITUDE

1. (4) $\sin Y = x,$
 $\cos 2Y = 1 - 2\sin^2 Y$
 $= 1 - 2x^2$
2. (4) $(a+b)^2 - (a-b)^2$
 $= a^2 + b^2 + 2ab - a^2 - b^2 + 2ab = 4ab$
3. (4) The ratio of number of monuments in B to D = 30 : 150 = 1 : 5
4. (2) The percentage increase in the total production of all types of two wheelers in 1998 in comparison to 1996 is $= \frac{(334 - 268)}{268}$
 $= \frac{66}{268} \times 100 = 24.62 \approx 25\%$

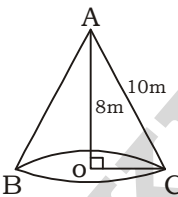
5. (3)



= 7 cm
Length of string
= 3 × diameter + perimeter
= 3 × 14 + 2 × π × 7
= 42 + 14π cm

6. (1) Let, CP = 100
MP = 115
 $SP = \frac{115 \times 95}{100} = 109.25$
So, the profit = (109.25 - 100) = 9.25%

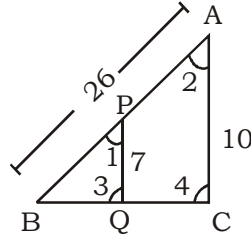
7. (2) ATQ,



$\Rightarrow OC^2 = AC^2 - AO^2$
 $\Rightarrow OC = \sqrt{100 - 64}$
 $\Rightarrow OC = 6$ m
Curved surface area of a right circular cone = $\pi r l$
 $= \pi \times 6 \times 10 = 60 \pi$ m²

8. (3) ATQ,
Y's production : Z's production
(18+13+17+8) : (15+18+12+19)
56 : 64
7 : 8
Required percentage = $\frac{7}{8} \times 100\%$
 $= 87.5\%$

9. (2)



PQ || AC
 $\angle 1 = \angle 2$ and $\angle 3 = \angle 4$
 $\therefore \Delta BPQ \sim \Delta BAC$
 $\frac{PQ}{AC} = \frac{BP}{BA}$
 $\Rightarrow \frac{7}{10} = \frac{BP}{26}$
 $\Rightarrow BP = 18.2$
 $\Rightarrow AP = AB - BP$
 $= 26 - 18.2 = 7.8$ cm

10. (1) 7% loss = $\frac{7}{100}$

24% profit = $\frac{24}{100}$

C.P	S.P
100	: 93
x	: y
100	: 124

$\Rightarrow \frac{100x}{93y} = \frac{100}{124}$

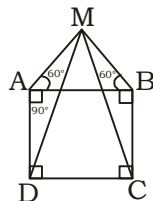
$\Rightarrow \frac{x}{y} = \frac{3}{4}$

ATQ,
4 units = 100 cm
3 units = 75 cm
Actual length instead of the water = 75 cm

11. (4)

ATQ,
20% 50%
30
20 : 10
2 : 1
2 units = 100
 $\therefore x = 1$ unit = 50 ml

12. (4)



Given, ABCD is a square, ABM is an equilateral triangle.

Then, AB = BC = CD = DA and MA = AB = MB
Hence, AB = BC = CD = DA = MA = MB

In triangle ADM
AD = AM
Thus, $\angle ADM = \angle AMD$

$= \frac{180^\circ + 50^\circ}{2} = 15^\circ$

\therefore Now, $\angle MDC = (90^\circ - 15^\circ) = 75^\circ$

13. (4) Let, after x days 4 men left the work.
 $10 \times 40 = 10 \times x + 6(50 - x)$
 $\Rightarrow 400 = 10x + 300 - 6x$
 $\Rightarrow 100 = 4x$
 $\Rightarrow x = 25$
 \therefore After 25 days four men leave the work.

14. (4) A + B = C,
 $\tan(A+B) = \tan C$

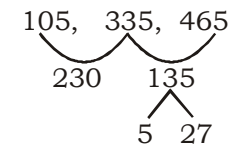
$\Rightarrow \frac{\tan A + \tan B}{1 - \tan A \tan B} = \tan C$

$\Rightarrow \tan A + \tan B = \tan C - \tan A \tan B \tan C$

$\Rightarrow \tan A \tan B \tan C = \tan C - \tan A - \tan B$

15. (4) given, $9m^2 + n^2 = 40, mn = 40$
Now, $(3m + n)^2 = 9m^2 + n^2 + 6mn$
 $\Rightarrow (3m + n)^2 = 40 + 6 \times 4$
 $\Rightarrow 3m + n = \sqrt{64}$
 $\Rightarrow 3m + n = 8$

16. (1) $x^2 + 4y^2 + 4y - 4xy - 2x - 8$
 $= (x^2 + 4y^2 - 4xy) - 2(x - 2y) - 8$
 $= (x - 2y)^2 - 2(x - 2y) - 8$
 $= (x - 2y)^2 - 4 - 2(x - 2y) - 4$
 $= (x - 2y)^2 - 2^2 - 2(x - 2y + 2)$
 $= (x - 2y + 2)(x - 2y - 2) - 2(x - 2y + 2)$
 $= (x - 2y + 2)(x - 2y - 4)$



17. (2) HCF of 105, 335, and 465 will be 5.
HCF = 5

18. (1) $13 \overline{) 302}$
26
4

So, required remainder will be 4.

19. (3) Number of authors in 2019
 $= (35 + 26 + 15 + 20 + 14) - (0 + 16 + 5 + 38 + 24)$
 $= 110 - 83 = 27$

20. (3) Total vote $\frac{100}{76\% \quad 24\%}$
 ATQ, $52\% \cong 1480$
 $\frac{100\%}{1480}$

$$= \frac{1480 \times 100}{52} = 2846$$

21. (4) $x = 8(\cos q + \sin q)$, $y = 9(\sin q - \cos q)$

$$\frac{x}{8} = \cos q + \sin q \text{ ----(i)}$$

$$\frac{y}{9} = \sin q - \cos q \text{ ----(ii)}$$

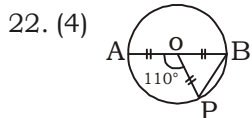
Squaring and adding both side equation (i) and (ii)

$$\frac{x^2}{8^2} + \frac{y^2}{9^2} = (\cos q + \sin q)^2 + (\sin q - \cos q)^2$$

$$= \cos^2 q + \sin^2 q + 2\sin q \cos q + \cos^2 q + \sin^2 q - 2\sin q \cos q$$

$$= 1 + 1 = 2$$

$$\text{So, } \frac{x^2}{8^2} + \frac{y^2}{9^2} = 2$$



$$\angle AOP = 110^\circ \quad \angle BOD = (180^\circ - 110^\circ) = 70^\circ$$

$$\angle OBP = \alpha = \angle OPB$$

(\because OB and OP are the radius)

$$\text{From } \triangle OPB$$

$$\Rightarrow 2\alpha + 70^\circ = 180^\circ$$

$$\Rightarrow 2\alpha = 110^\circ$$

$$\alpha = 55^\circ$$

23. (3) ATQ, $A \times 7 = B \times 5$

$$= \frac{A}{B} = \frac{5}{7}$$

The ratio between the speeds of A and B is.

$$= 5 \times 8 : 7 \times 6$$

$$= 20 : 21$$

24. (1) ATQ,

$$100 = \frac{100 \times 5 \times T}{100}$$

$$\Rightarrow \text{Time} = 20 \text{ years}$$

$$\text{Now, } 400 = \frac{100 \times 20 \times R}{100}$$

$$\Rightarrow R = 20\%$$

$$\text{Required rate} = 20\%$$

25. (3) Milk : Water

$$\text{Initial} \rightarrow 5 : 3$$

$$\text{Now} \rightarrow 1_{\times 5} : 2_{\times 5} \quad \left. \vphantom{\text{Now}} \right\} 7 \text{ unit}$$

$$= 5 : 10$$

$$7 \text{ units} = 7L$$

$$5 \text{ units} = 5L$$

\therefore The quantity of milk in mixture is 5 liters.

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

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

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

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

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

GENERAL AWARENESS

1. (2) Base Changes the Red litmus to Blue.

2. (4) **Patkai Hills** - Arunachal Pradesh, Nagaland

Mizo Hills (Lushai) - Mizoram & Manipur

Shevavory Hills - Tamil Nadu

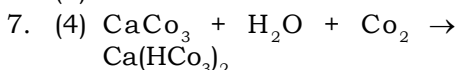
3. (2)

4. (4) Sitara Devi was awarded Sangeet Natak Akadami Award in 1969 and the Padma Shri in 1973, also awarded the Kalidas Samman and Nritya Nipuma Samman.

5. (4) Article 20 - Protection in respect of conviction for offences

Article 33 - Power of Parliament to modify the rights conferred by this part in their application to Forces.
 Article 300A - Right to property.

6. (4)



8. (3) Faxian was a Chinese traveller, who came to India in 399 CE during the reign of Chandra Gupta II.

Book written by him is Fuguoji

9. (1)

10. (2)

11. (4) Group 13 is known as Boron family. It includes semi-metal Boron(5) and metals Aluminium (13), Gallium (31), Indium (49), Thallium (81) and Nh (113). These are p block elements with

a valency of 3 and electric configuration ns^2np^1 .

12. (1) Solvate Isomerism are the isomers which have the same composition but differ with respect to number of solvent ligand molecules as well as counter ion in the crystal lattice.

Linkage Isomerism is a form of Isomerism in which certain coordination compounds have same composition but differ in their metal atoms connectivity to a ligand.

Ionisation Isomerism involves the exchange of ions inside and outside coordination sphere.

13. (2) Length of Redcliff line is 3323 km. McMahon line separates India and China.

States of India touches countries Pakistan - Punjab, Rajasthan, Gujarat, and Jammu & Kashmir.

China - Sikkim, Arunachal Pradesh, Uttarakhand, Himachal Pradesh, Ladak.

Nepal - Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim.

Bangladesh - Assam, Tripura, Mizoram, Meghalaya and West Bengal.

14. (1) Chalk (sedimentary rock) is formed deep under the sea by the compression of microscopic plankton that had settled to the sea floor. Coal is formed from remains of plants buried beneath the crust of earth.

Specialized cells in the mantle build the shell proteins and minerals.

15. (1) Asit Rath - CEO of Aviva

Surjan Das - President of AIU

R. Dinesh - President of Confederation of Indian Industry.

16. (1) Usha Uthup won Filmfare Award for Best Female playback singer in 2012 for 'Darling', recorded with Rekha Bhardwaj.

Monali Thakur won National Film Award for song 'Moh Moh ke Dhage' and a Filmfare Award for song 'Sawaar Loon'.

17. (2) Nalin Negi - CEO Bharat Pe Satyendra Prakash - DC of PIB
18. (4) Gwalior Gharana - Ustad Bade Inayat Khan, Tansen.
19. (4) Visva-Bharti University is located in Shanti Niketan, West Bengal. It was founded on 23 Dec, 1921. Its motto is, "Yatra Vishwam Bhavati Eka Needam". Lala Lajpat Rai and Madan Mohan Malviya founded the Akhil Bhartiya Hindu Mahasabha in 1915. Banaras Hindu University, Varanasi was founded by Madan Mohan Malaviya in 1916. Ram Krishna Mission was founded by Swami Vivekananda in 1897.

20. (4) Bhumiputra Scheme - digitalised caste certificates will be issued to students, in simplified and digital way. It will be implemented by Departments of Tribal Affairs and Social Justice Empowerment. Minister of Tribal Affairs - Arjun Munda
Minister of Social Justice Empowerment - Virendra Kumar Khatik.

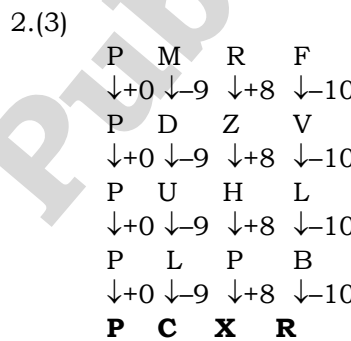
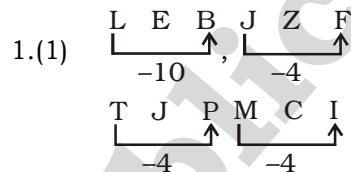
21. (3) Quit India Movement (August Kranti) was launched at Bombay session of INC by Mahatma Gandhi on 8th August 1942.

Champaran Satyagraha of 1917 was farmer's protest led by Mahatma Gandhi against forcible cultivation of Indigo with barely any payment for it. Salt Satyagraha (Dandi March) was an act of non-violent Civil disobedience led by Mahatma Gandhi. The 24 day march lasted from 12th March to 6th April 1930. Gandhi Ji started the March with 78 volunteers from Sabarmati Ashram to Dandi. Non-Cooperation Movement was launched on the 4th

September, 1920 by Mahatma Gandhi.

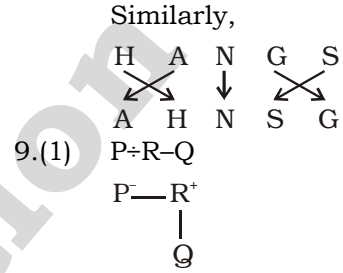
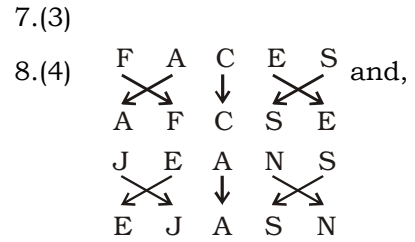
22. (3) Indian Javelin thrower, Devendra Jhajharia has clinched a silver medal in World Para Athletics Grand Prix, in Morocco.
23. (2)
24. (1) Sankalp Gupta - Chess
Sankalp Gupta - Table Tennis
Archana Kamat - Table Tennis
25. (3) Hyderabad (1798), Mysore (1799), Peswa (1802), Bhosle (1803), Scindia (1814), Singrauli (1814), Jaipur & Jodhpur (1818) and Holkar (1818).
1. (2) 2. (4) 3. (2) 4. (4) 5. (4)
6. (4) 7. (4) 8. (3) 9. (1) 10. (2)
11. (4) 12. (1) 13. (2) 14. (1) 15. (1)
16. (1) 17. (2) 18. (4) 19. (4) 20. (4)
21. (3) 22. (3) 23. (2) 24. (1) 25. (3)

GENERAL INTELLIGENCE & REASONING



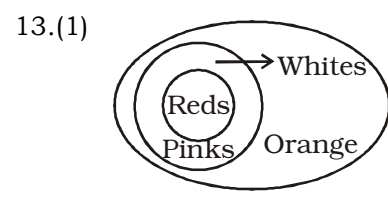
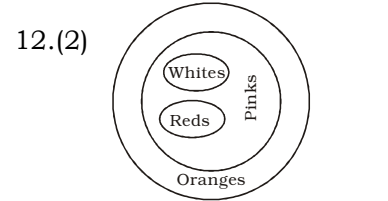
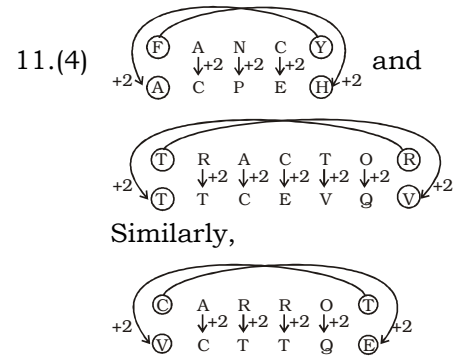
3. (2) 10, 15, 25, 45, 85, 165
4. (1) $11 * 3 * 11 * 2 * 9 = 10$
Putting $\times, \div, -, +$
 $\Rightarrow 11 \times 3 \div 11 - 2 + 9 = 10$
 $\Rightarrow 11 \times \frac{3}{11} - 2 + 9 = 10$
 $\Rightarrow 3 - 2 + 9 = 10$
 $\Rightarrow 10 = 10$
5. (3) $264 + 24 \times 9 \div 60 - 4 = 630$
interchanging, 4 and 24, \div and $+$.
 $\Rightarrow 264 \div 4 \times 9 + 60 - 24 = 630$

$\Rightarrow 66 \times 9 + 60 - 24 = 630$
 $\Rightarrow 595 + 36 = 630$
 $\Rightarrow 630 = 630$
6. (4) $11 \times 3 - 2 = 33 - 2 = 31$
 $14 \times 3 - 2 = 42 - 2 = 40$
 $9 \times 3 - 2 = 27 - 2 = 25$



So, R is brother of P.

10. (2)
3. Ageism
4. Ageist
5. Agency
2. Agenda
1. Agenda



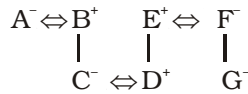
14. (1) $(14)^2 + 10 = 196 + 10 = 206$
 $\neq 208$

$$(18)^2+10 = 324+10 = 334$$

$$(12)^2+10 = 144+10 = 154$$

$$(16)^2+10 = 256+10 = 266$$

15.(2) A & B # C & D @ E % F + G



So, A is daughter-in-law of D.

16.(4) 'Lethargy' and 'Alertness' are antonyms of each other.

Similarly,

'Gentle' and 'Harsh' are antonyms of each other.

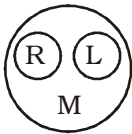
17.(4) $(21-9) \times 2 = 24$

$$(33-16) \times 2 = 34$$

$$(30-9) \times 2 = 42$$

18.(2)

19.(2)



20.(2) $(11+8) \times 4 = 19 \times 4 = 76$

$$(9+8) \times 4 = 17 \times 4 = 68$$

$$(x+8) \times 4 = 88$$

$$(x+8) = 22$$

$$x = 14$$

21.(2) From fig (i) and (iii)

$$5 - 6 \begin{array}{l} \nearrow 3 \\ \searrow 4 \end{array}$$

22.(4)

So, 3 is opposite of 4.

From equation I

$$I. 5+7-8 \times 4 \div 2 = 9$$

interchanging - and \div , 8 and 2.

$$5+7 \div 2 \times 4-8 = 9$$

$$\Rightarrow 5 + \frac{7}{2} \times 4 - 8 = 9$$

$$\Rightarrow 5 + 14 - 8 = 9$$

$$\Rightarrow 11 = 9$$

So, (I) is not follow.

$$II. 3+8 \times 4-2 \div 1 = 3$$

interchanging - and \div , 8 and 2.

$$\Rightarrow 3+2 \times 4 \div 8-1 = 3$$

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

$$\Rightarrow 3+1-1 = 3$$

$$\Rightarrow 3 = 3$$

So, II follows.

23.(3)

24.(1)

C	L	P	M
↓+3	↓+2	↓+1	↓+1
F	N	Q	N
↓+3	↓+2	↓+1	↓+1
I	P	R	O
↓+3	↓+2	↓+1	↓+1
L	R	S	P
↓+3	↓+2	↓+1	↓+1
O	T	T	Q

25.(2) Lake is surrounded by land, and island is surrounded by water.

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

ENGLISH LANGUAGE AND COMPREHENSION

1. (1) "Questionnaire" is wrongly spelt as "questionaire".
Meaning - A list containing a list of questions (प्रश्नावली)

4. (2) replace "but" with "than".
'Other.... than' and 'else but' are the correct pairs.

12. (4) "By fits and starts" means- stopping and starting again many times, rather than progressing steadily, doing something infrequently.

16. (3) 'Living beyond her means' is the correct expression. It means to spend more money than one can afford.

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

Words

Meaning in English

Meaning in Hindi

Brunt

The full adverse effects; the chief consequences or negative results of a thing or event.

समाघात

Bipartisan

supported by or involving two political parties.

द्विदलीय; द्वि-पक्षीय

Hackneyed

Repeated too often.

अत्यधिक प्रयोग के कारण नीरस एवं उबारु;
घिसा-पीटा

Syn. banal, commonplace, clichéd, threadbare, timeworn, trite, well-worn.

Ant. Fresh, new, novel, original, unclichéd.

Inimical

Harmful to something; making it difficult for something to happen or exist.

हानिकारक; अस्तित्व को संकट में डालना

Sanatorium

an establishment or facility offering usually long-term medical care or treatment.

स्वास्थ्यालय, आरोग्य निवास

Safari

A trip to see or hunt wild animals, especially in East Africa.

वन्य पशु दर्शन या आखेट के लिए सैर (विशेषतः पूर्वी अफ्रीका में)