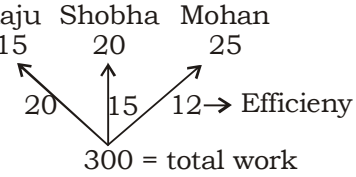
QUANTITATIVE APTITUDE

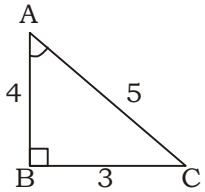
1. (4) $\sin^2\theta - 3\sin\theta + 2 = 0$
$\Rightarrow \sin^2\theta - 2\sin\theta - \sin\theta + 2 = 0$
$\Rightarrow \sin\theta(\sin\theta - 2) - 1(\sin\theta - 2) = 0$
$\Rightarrow \sin\theta = 1$
$\Rightarrow \sin\theta = \sin 90°$
$\Rightarrow \theta = 90°$
2. (2) LCM of 1.2 and 2.7 is 10.8
3. (3) Let, the height of right circular cylinder (h) = 14 cm
The radius of a right circular cylinder (r) = 4×14 = 56
The volume of cylinder
$= \pi r^2 h$
$= \frac{22}{7} \times 56 \times 56 \times 14$
$= 137984 \text{ cm}^2$
4. (3) ATQ, $\frac{880 \times R \times 1\frac{1}{2}}{100}$
$= (913 - 880)$
$\Rightarrow \frac{880 \times r \times 3}{100 \times 2} = 33$
$\Rightarrow r = \frac{100 \times 2 \times 33}{880 \times 3} = \frac{10}{4}$
$= 2\frac{2}{4} \Rightarrow 2\frac{1}{2}\%$
5. (4) Let, 1st number is $100x$
2nd number will be $80x$
3rd number will be $80x \times \frac{300}{100} = 240x$
Difference of 3rd number and Original number is $(240x - 100x)$ $140x$
Difference of 2nd and 3rd number is $(240x - 80x)$
$= 160x$
Required percentage
$= \frac{20x}{160x} \times 100 = 12.5$ less.
6. (2) When a six digit number is formed by repeating a 3 digit number like, ABC is writen as ABCABC then it is divisible by 7, 11, 13 and the LCM of 7, 11 and 13 that is 1001.
7. (1) Printed price of a TV set is 14,500
Selling price of the TV set is 10,000
So, Disscount = (14,500 – 10,000) = 4500
Successive discount is = $\frac{4500}{14,500} \times 100\% = 31.03\%$
Let, second discount is x%
ATQ,
$10 + x - \frac{10x}{100} = 31.03$
$\Rightarrow \frac{90x}{100} = 21.03$
$\Rightarrow x = 21.03 \times \frac{10}{9} = 23.37\%$
8. (1) $a + \frac{1}{a} = 5$
Then, $a^3 + \frac{1}{a^3} = 125 - 3.5$
$= 125 - 15$
$= 110$
9. (1) Let, the sides of triangle are 6x, 8x, 10x.
Then,
area $= \sqrt{S(s-a)(s-b)(s-c)}$
$\because s = \frac{a+b+c}{2} = \frac{6x+8x+10x}{2}$
$= 12x$
$\sqrt{12x(12x-6x)(12x-8x)(12x-10x)}$
$= \sqrt{12x \times 6x \times 4x \times 2x}$
$= \sqrt{x^4 \times 6 \times 6 \times 4 \times 2 \times 2}$
$= x^2 \times 6 \times 2 \times 2$
$= 24x^2$
ATQ,
$\Rightarrow 24x^2 = 96$
$\Rightarrow x^2 = \frac{96}{24} = 4$
$\Rightarrow x = 2$
The perimeter of the triangle is
$= 2(6+8+10) = 2 \times 24 \Rightarrow 48$ cm
10. (*) (Wrong question is given by SSC)
11. (1) As distance is constant so the speed is inversly proportional to time.
Ratio of time = (9×60+36) : 60×6 = (540+36) : 360
= 576 : 360
= 8 : 5
Ratio of speed = 5 : 8
Let the upstream speed be 5x and downstream speed be 8x.
The speed of boat
$= \frac{5x+8x}{2} = \frac{13x}{2}$
The speed of stream
$= \frac{8x-5x}{2} = \frac{3x}{2}$
The rato of speed of the boat in still water to that fo the stream.
$= \frac{13x}{2} : \frac{3x}{2} = 13 : 3$
12. (4)



In 3 days
Raju, Shobha and Mohan can do = 20+15+12 = 47 work
In 18 days Raju, Shobha and Mohan can do = 47×6 = 282
Remaining work = (300–282) = 18 will be done by Raju in
$= \frac{18}{20} = \frac{9}{10}$ days.
So, the total required time is = $18\frac{9}{10}$ days.
13. (2) $a^2+b^2+c^2-2ab-2bc+2ca$ is the formula of $(a-b+c)^2$.
14. (3) Time taken by the speed of 60km/h $= \frac{300}{60} = 5$ hrs.
Time taken by the speed of 30km/h $= \frac{300}{30} = 10$ hrs.
We know average speed
$= \frac{300+300}{15} \Rightarrow \frac{600}{15} = 40$ km/h
15. (3) Average number of people in all the states
$= \frac{474+500+444+495+580}{5}$
$= \frac{2493}{5} \Rightarrow 498.6$

16. (4) Let, the age of father = 7x
The age of son = 4x
Total age = 11x
ATQ,
11x = 55×2
x = 10
So, The age of father = 70 and the age of son is 40 year.
The ratio of their age after 6 years will be 76 : 46
38 : 23

17. (2)



sinA + sinB + sinC

$= \frac{3}{5} + \sin 90° + \frac{4}{5}$

$= \frac{7}{5} + 1 = \frac{12}{5}$

$= 2\frac{2}{5}$

18. (3) Let us assume the dealer purchases 1000 gm at Rs. 1000.
Let the dealer purchases N gm Rs. 1000.
Gain percentage = 15%
ATQ,

$15 = \left[\frac{(1000 - N)}{N}\right] \times 100$

$\Rightarrow N = (1000 - N) \times \frac{20}{3}$

$\Rightarrow 3N = 20000 - 20N$

$\Rightarrow 23N = 20000$

$\Rightarrow N = 869.6$ gm

19. (4) Number of males in Bihar in the year 1998 =

$32760000 \times \frac{11}{100} \times \frac{3}{7}$

= 1,54, 440

20. (2) $\frac{x}{8} + \frac{8}{x} = 1$

Let, $\frac{x}{8} = a$

or, $a + \frac{1}{a} = 1$,

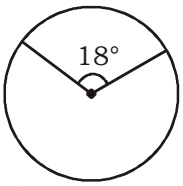
We know that, If $y + \frac{1}{y} = 1$,

then, $y^3 = -1$
So, $a^3 = -1$

$\left(\frac{x}{8}\right)^3 = -1 \Rightarrow \frac{x^3}{512} = -1$

$= x^3 = -512$

21. (3)



$l = 44$
Perimeter of sector

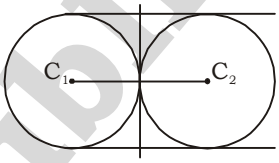
$\frac{\theta}{360} \times 2\pi r = 44$

$\frac{18}{360} \times 2 \times \frac{22}{7} \times r = 44$

r = 140

22. (1) The highest exports from the three companies together is
2019 – 4000+3000+5000 = 12000 → Heighest export.
2017 – 2000+4000+4000 = 10000
2015 – 2000+4000+3000 = 9000
2016 – 1000+5000+2000 = 8000

23. (4) $r_1 + r_2 = c_1 + c_2$



The numbers of common tangent – 3

24. (4) $\frac{1 + \sin\theta}{\cos\theta}$ is equal to $\frac{\cos\theta}{1 - \sin\theta}$

25. (2) The lectures recruited in state B in the year 2021 were female

$= 5500 \times \frac{(100 - 35)}{100} = 3575$

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

GENERAL AWARENESS

1. (3) Neeraj Chopra - Javelin Throw
Sankalp Gupta - Chess
Manish Narwal - Para Pistol Shooter.

2. (1) Furan: It is a heterocyclic organic compound consisting of a five-membered aromatic ring with four carbon atoms and one oxygen atom.
C_4H_4O
Styrene:- It is derivative of benzene, a colourless oily liquid Styrene is an organic compound with the chemical formation
styrene (C_8H_8)
Toluene:- Toluene also know as toluol is a substituted aromatic hydrocarbon. It is colorless, water-insoluble liquid with the smell associated with paint thinners.

3. (2) The constitution has a preamble and 470 articles, which are grouped into 25 parts with 12 schedules and five appendices.
Article 50 :- Sepration of Judiciary from executive.
Article 44: Uniform civil code

4. (1) List of Intangible Cultural Heritage in India, Buddhist Chanting, Kalbelia, Chhau Dance, Koodiyattam, Kumbh Mela, Mudiyett, Nawruz, Ramlila, Sankirtana, Ramman, Traditional Brass and Copper Craft of Utensil making, Chanting, Yoga, Durga Puja

5. (4)

6. (3) Dr S raju - DG of Geological Survey of India.
Ashwin Yardi - CEO of Capgemini Technology Services India.

7. (1) The geographical area of India is divided into 15 agro-climatic regions. These are further divided into 72 more homogeneous sub-zones.

8. (1) In 1949, the National Income Committee (NIC) was formed to compile statistics and estimate national income. The committee was headed by P.C. Mahalanobis and included D.R. Gadgil and V.K.N.V. Rao.

9. (4) Atomic number of Titanium is 22.

10. (2) Maharashtra took an initiative to ensure that natural resources are passed on to the next generations. The programme is aimed at conserving native biodiversity.
11. (1)
12. (3) Use of terms like jumlajeevi, baal buddhi, 'Covid spreader' and 'Snoopgate' and even commonly used words like 'ashamed', 'abused, 'betrayed', 'corrupt', 'drama', 'hypocrisy' and 'incompetent' will henceforth be considered unparliamentary in the Lok Sabha and Rajya Sabha.
13. (4) The Peninsular plateau is a tableland composed of the old crystalline, igneous and metamorphic rocks. It was formed due to the breaking and drifting of the Gondwana land and thus, making it a part of the oldest landmass. The plateau has broad and shallow valleys and rounded hills.
14. (2)
15. (2) Subash Chandra Bose addressed Mahatma Gandhi as 'Father of Nation' from Singapore in 1944.
16. (4)
17. (2)
18. (1) T Balasaraswati was awarded Padma Bhushan in 1957 and Padma Vibhushan in 1977.
19. (2)
20. (4) Ustad vilayat Khan was an Indian classical sitar player [sitarist]
He was born on 28th August 1928 in Gouripur Bangladesh and died on 13th March 2014 Mumbai, India.
21. (1)
22. (4) Arctic Ocean - bering strait connects the arctic ocean with the palitic ocean.
Indian Ocean - Sunda strait connects the Java sea to the Indian Ocean.
Atlantic Ocean:- Gibrallar strait connects the Atlantic ocean to the Mediterranean sea.
23. (3)
24. (3)
25. (2) The indo-Greek rule lasted from about 180 BC till about 55 BC.
The Shakas also known as Indo-seythains invaded northwest India in first century BC onwand.
Shakas dynasty ruled from 150BC to 400AD
The first saka king of India was maues or moga.

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

GENERAL INTELLIGENCE & REASONING

1.(3)

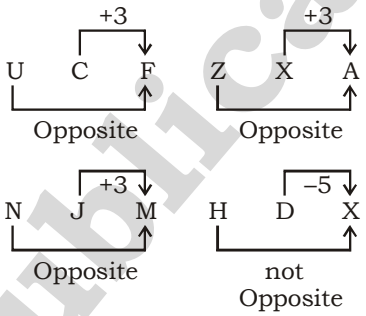
$A \xrightarrow{+0} A \xrightarrow{+0} A \xrightarrow{+0} A \xrightarrow{+0} A$

$B \xrightarrow{-4} X \xrightarrow{-4} T \xrightarrow{-4} P \xrightarrow{-4} L$

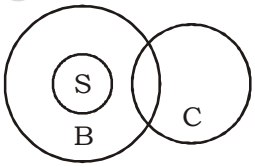
$C \xrightarrow{-8} U \xrightarrow{-8} M \xrightarrow{-8} E \xrightarrow{-8} W$

$D \xrightarrow{-12} R \xrightarrow{-12} F \xrightarrow{-12} T \xrightarrow{-12} H$

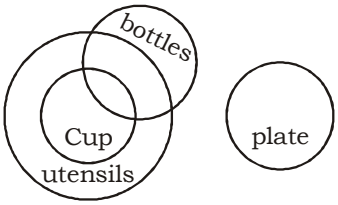
2.(4)



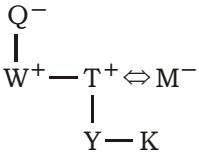
3.(3)



4.(1)

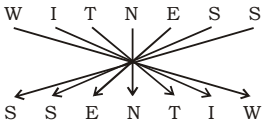


5.(3) W @ Q % T & Y @ M % K

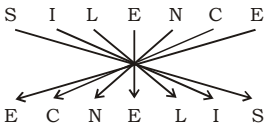


W is the brother of K's father.

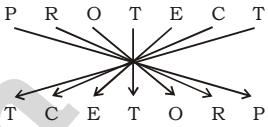
6.(4)
7.(3)
8.(1)
9.(2)



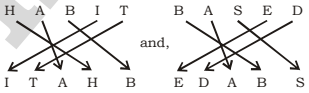
and,



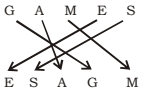
Similarly,



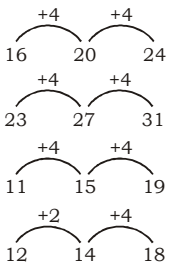
10.(1)



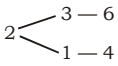
Similarly,



11.(4)

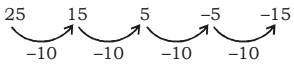


12.(3) From fig. (2) and (3)



2 ↔ 5
The number 5 is on the face opposite the face showing '2'.

13.(2)



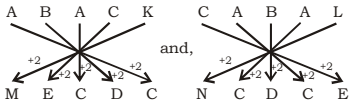
14.(3) Given,
168 + 122 = 290
option (1) 198 + 112 = 310
option (2) 226 + 148 = 374
option (3) 236 + 118 = 354 ≠ 356
option (4) 126 + 132 = 258

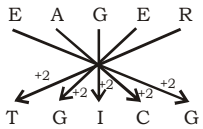
15.(1) 72 ÷ 6 – 20 + 30 × 5 = 70
interchanging 5 and 20, – and ×
⇒ 72 ÷ 6 × 5 + 30 – 20 = 70
⇒ 12 × 5 + 10 = 70
⇒ 60 + 10 = 70
⇒ 70 = 70

16.(4)

17.(3) The sound of Lion is called Roar.
Similarly,
The sound of Horse is called Neigh

18.(4) [{(14 @ 6) @ (2 @ 3)} @ (1 @ 7)] @ 2 @ 4
Putting –, +, ×, ÷, ×, ×, =
⇒ [{(14 – 6) + (2 × 3)} ÷ (1 × 7)] × 2 = 4
⇒ [{8 + 6} ÷ 7] × 2 = 4
⇒ [14 ÷ 7] × 2 = 4
⇒ 2 × 2 = 4
⇒ 4 = 4

19.(1) 

Similarly,


20.(2) 4. Overlain
5. Overland
1. Overload
3. Overlook
2. Overplay

21.(2) 60 × (8 + 1) = 60 × 9 = 540
7 × (9 + 1) = 7 × 10 = 70
7 × (8 + 1) = 7 × 9 = 63

22.(4) 34 ÷ 16 + 4 × 8 – 6 = 60
Interchanging ÷ and +
⇒ 34 + 16 ÷ 4 × 8 – 6 = 60
⇒ 34 + 4 × 8 – 6 = 60
⇒ 34 + 32 – 6 = 60
⇒ 66 – 6 = 60
⇒ 60 = 60

23.(1) P ÷ Q × R

$P^{+} — Q^{+}$
|
R

So, P is the paternal uncle of R.

24.(1) $V \xrightarrow{-1} U \xrightarrow{-1} T \xrightarrow{-1} S \xrightarrow{-1} R$
$S \xrightarrow{-2} Q \xrightarrow{-2} O \xrightarrow{-2} M \xrightarrow{-2} K$
$N \xrightarrow{-2} L \xrightarrow{-2} J \xrightarrow{-2} H \xrightarrow{-2} F$
$Y \xrightarrow{-4} U \xrightarrow{-4} Q \xrightarrow{-4} M \xrightarrow{-4} I$

25.(3) $(14 + 6)^2 = (20)^2 = 400$
$(37 + 6)^2 = (43)^2 = 1849$
$(42 + 6)^2 = (48)^2 = 2304$

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

ENGLISH LANGUAGE AND COMPREHENSION

16. (4) "The number of" takes a singular verb.
While "a number of" is followed by a plural verb. (It implies an unspecified number).
Ex:- A number of students are watching the FIFA World Cup.

17. (2) "Foreseeable" is incorrectly spelt.
Meaning- able to be anticipated or expected. (जिसका अनुमान लगाया जा सके)

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

Words	Meaning in English	Meaning in Hindi
Bookmark	A strip of material used to mark a place in a book	बुकमार्क, पुस्तक चिंह
Boost	To increase something in number, value or strength	बढ़ाना
Cautiously	Careful about avoiding danger or risk	सावधानी से
Congruent	Having exactly the same size and shape	अनुकूल
Convoluted	Folded or curved in twisted windings	जटिल, लपेटा हुआ
Dishearten	To cause to lose spirit or morale	उत्साह भंग करना
Exhilarate	To make somebody feel very excited and happy	आनन्दित, उत्साहित करना
Feasible	Possible to do	संभव
Flirt	To behave amorously without serious intent	इश्कबाजी करना
Foreseeable	Reasonably can or should be anticipated	जो होने की संभावना है
Intrigue	A secret and complicated scheme	साजिश
Irreversible	That cannot be stopped or changed, not reversible	अपरिवर्तनीय
Irrevocable	(used about a decision, action, etc.) That cannot be changed or reversed. *Syn. irreversible.*	अटल; अपरिवर्तनीय
Mundane	Ordinary	सामान्य, साधारण
Renounce	To give up, refuse, or resign usually by public declaration	त्याग देना
Repudiate	To refuse to accept	खंडन करना
Salient	Most important or noticeable.	सर्वाधिक महत्वपूर्ण, मुख्य
Transparent	That you can see through	पारदर्शी
Unmediated	Having no intervening persons	असंबद्ध