QUANTITATIVE APTITUDE
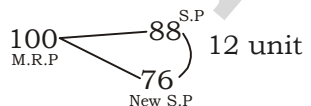
1. (4) Ratio of radius and height
= r : h = 3 : 1
1 unit → 2.1 cm (h)
Radius of cylinder → 2.1 × 3 = 6.3 cm (r)
Volume of cylinder = $\pi r^2 h$
$= \dfrac{22}{7} \times 6.3 \times 6.3 \times 2.1$
= 261.95 cm³

2. (1) (5M + 8 W) 12=(3M + 7 W) 15
⇒ 60M + 96W = 45 M + 105W
⇒ 5M = 3W
Ratio of efficiency of M : W = 3 : 5
∴ Time require = $\dfrac{(60 \times 3 + 96 \times 5)}{(11 \times 5)}$
= 12 days

3. (3) Average wages of employees
$= \dfrac{765 + 285 + 3255 + 575 + 250}{9 + 3 + 31 + 5 + 2}$
$= \dfrac{5130}{50} = 102.6$
The average wage of the employees lie between 100-110.

4. (2) ATQ,
⇒ $\dfrac{k - k\cot^2 30°}{1 + \cot^2 30°} = \sin^2 60° + 4$
$\tan^2 45° - \text{Cosec}^2 60°$
⇒ $\dfrac{k[1-(\sqrt{3})^2]}{[1+(\sqrt{3})^2]} = \left(\dfrac{\sqrt{3}}{2}\right)^2 + 4 \times (1)^2 - \left(\dfrac{2}{\sqrt{3}}\right)^2$
⇒ $\dfrac{k \times (-2)}{4} = \dfrac{3}{4} + 4 - \dfrac{4}{3}$
⇒ $\dfrac{-k}{2} = \dfrac{41}{12}$ ⇒ $k = -6.83$

5. (3) 100 (M.R.P) — 88 (S.P) — 76 (New S.P) } 12 unit
ATQ,
12 units = 2400
$100 \text{ units} = \dfrac{2400}{12} \times 100 = 20000$

6. (3) Expenditure = price × consumption
$20\% = \dfrac{1}{5}$
Ratio of original side to decreased side
Price   5   : 4
Consume 4   : 5
            20   20
Expenditure (Same)
Percentage increase in consumption
$= \dfrac{1}{4} \times 100 = 25\%$

7. (4) ATQ,
$\dfrac{4}{3} \times \dfrac{22}{7} \times 9 \times 9 \times 9 = \pi \times 2 \times 2 \times h$,
⇒ h = 243m
Length of wire = 243cm.

8. (4) Let smallest number = x
ATQ,
9 – x : 13 – x :: 13 – x : 18
⇒ $\dfrac{9-x}{13-x} = \dfrac{13-x}{18}$
⇒ $162 - 18x = 169 + x^2 - 26x$
⇒ $x^2 - 8x + 7 = 0$
⇒ $(x-7)(x-1) = 0$
x = 7 or x = 1
Smallest positive number = 1

9. (3) Let,
Daily wage of the women = x
Daily wage of the man = 50 + x
ATQ,
$450 = \dfrac{700(50+x) + 300x}{1000}$
⇒ $4500 = 350 + 7x + 3x$
⇒ x = 415

10. (3) ATQ,
A – B = 45°   ...(1)
B – C = 15°   ...(2)
From (1) and (2), we get
A – 2 B + C = 30° -----(3)
We know that,
A + B + C = 180° -----(4)
From (3) and (4), we get,
B = 50°
From equation (1)
A – B = 45°
⇒ A – 50 = 45°
⇒ A = 95°

11. (4) ATQ,
$8a^2 + 27b^3 = 16$,
⇒ $(2a)^3 + (3b)^3 = 16$
⇒ $(2a+3b)(4a^2 + 9b^2 - 6ab) = 16$
⇒ $4a^2 + 9b^2 - 6ab = 4$ ----(1)
Now, 2a + 3b = 4 [Squaring both side]
⇒ $4a^2 + 9b^2 + 12ab = 16$ ----(2)
From (1) and (2), we get,
18 ab = 12
⇒ $ab = \dfrac{2}{3}$
Put, ab = 1 In equation---(1)
$4a^2 + 9b^2 = 8$
Squaring both side
$(4a^2 + 9b^2)^2 = 8^2$
⇒ $16a^4 + 81b^4 + 72a^2b^2 = 64$
⇒ $16a^4 + 81b^4 = 64 - 32$
$16a^2 + 81b^2 = 32$

12. (4) The average of exports during the given period of time.
$= \dfrac{825 + 1014 + 1240 + 1522 + 1650}{5}$
$= \dfrac{6251}{5} = 1250.2$

13. (1) Let the selling price = 100
then, cost price $= 100 \times \dfrac{72}{100} = 72$
Profit earned = 100 – 72 = 28
Required profit $= \dfrac{28}{72} \times 100 = 38.89\%$

14. (4) Since interest is compounded 6 monthly.
effective rate of interest
$= 20 \times \dfrac{6}{12} = 10\%$
and effective time period = 2 × $\dfrac{12}{6} = 4$
Original effective rate %
$= 10 + 10 + \dfrac{10 \times 10}{100} = 21$
$= 21 + 21 + \dfrac{21 \times 21}{100} = 46.41\%$
Compound interest
$= 15750 \times \dfrac{46.41}{100} = 7309.575$

15. (4) ATQ,
Time taken by police to catch the thief $= \dfrac{500}{15 - 5} = 50$ sec
Distance covered by thief = 5 × 50 = 250 m

16. (4) Let N = 32 or any number which leaves 4 as remainder. Now, $32^2 = 1024 = 7 \times 146 + 2$

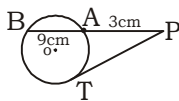∴ Required remainder = 2

17. (2) ATQ,
Business Analysis who joined the organisation = 80 + 63 + 78 + 42 + 67 = 330
Sales representative who joined the organisation.
= 50 + 46 + 38 + 34 + 22 = 190

∴ Required difference
= 330 – 190 = 140

18. (4) $Sec^2B = 1 + tan^2B$

$= 1 + \dfrac{1}{Cot^2B}$

$= 1 + \dfrac{1}{81} = \dfrac{82}{81}$

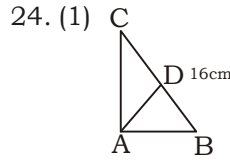19. (3) ATQ,

$PT^2 = PA \times PB$

⇒ $PT^2 = 3 \times 12$

⇒ $PT = \sqrt{36}$

⇒ $PT = 6cm$

20. (4) 95×105
= $(100 – 5)(100 + 5)$
= $10000 – 25 = 9975$

21. (2) ATQ,
$HCF \times 3 \times 8 = 120$
⇒ HCF = 5
∴ Sum of numbers are = 5(3+8) = 55

22. (3) $\dfrac{\cos x - \sqrt{3}\sin x}{2}$

$= \dfrac{1}{2}\cos x - \dfrac{\sqrt{3}}{2}\sin x =$

$\cos\dfrac{x}{3}\cos x - \sin\dfrac{x}{3}\sin x$

$= \cos\left(\dfrac{x}{3} + x\right)$

23. (2) We know that, when
$a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$
ATQ,
$x + y + z = 12 – 8 – 4 = 0$
Now,
∴ $(12)^3 + (–8)^3 + (–4)^3$
= $3 \times 12 \times (–8) \times (–4) = 1152$

24. (1)

Now, $\dfrac{1}{2} \times AD \times 16 = 80$

⇒ AD = 10 cm

25. (2) Required difference

$= \dfrac{2500(15 – 11)}{100} = 100kg.$

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

GENERAL AWARENESS

1. (1) Pandit Ravi Shankar was a Indian Sitarist and awarded India's highest civilian honour the Bharat Ratna in 1999.
Tanvi Shah is the first female from India to win a Grammy award.
Pandit Shiv Kumar Sharma - Santoor
Pandit Vishva Mohan Bhatt - Veena
Ustad Jakir Hussen - Tabla

2. (1) $CaSO_4.2H_2O$ - Calcium Sulphate Dihydrate
$CaSO_4$ - Calcium Sulphate
$CaSO_4.(1/2)H_2O$ - Plaster of Paris

3. (2) Bhil tribe - Nawai Festival
Tharu tribe - Maghi Festival
Bhutia tribe - Losoong Namsoong

4. (3) Article 352 deals with the proclamation of an emergency due to war, external aggression or armed rebellion.
Article 249 : Power of Parliament to legislate with respect to a matter in the state list in the national interest.
Article 368 does not contain the power to amend the constitution but only a procedure
Article 356: Provisions in case of failure of constitutional machinery in State

5. (1) Bijayini Satpathy:- Sangeet Natak Akadami's Bismillah Khan Yuva Puraskar in 2006, the yagnaraman award in 2008 prestigious Nritya Choodamani title from Sri Krishna Gana Sabha. Chennai in 2011.

Sonal Mansingh - Sangeet Natak Akadami Award (1987) Padma Bhusan (1992) Padma Bhushan (2003)
Gangadhar Pradhan - Sangeet Natak Akadami Award, Padma Shri (2008)

6. (4) 2023 FIFA U-17 World Cup held in Peru.
Winner - Spain
Runners up - Colombia

7. (3) Bill file - A case file containing material relating to legislation
Balance of payment - The method by which countries measure all of the international monetary transactions within a certain period
Bank bailout - A general term for extending financial support to a company or a country facing a potential bankruptcy threat.

8. (3)

9. (3) Invention of spring balance - It works on hook's law
Invention of piezometer - Hans Christian Oersted
Invention of vacuum gauge - Herbert Meleod

10. (2) Mughal emperors -
Babur (1526–1530), Humayun (1530–1540), Humayun (second reign) 1555–1556, Akbar I(1556–1605), Jahangir I (1605–1627) Shah Jahan I(1627–1658), Aurangzeb (1658–1707),Azam Shah (1707), Bahadur Shah I (1707–1712), Farrukh-Siyar (1713–1719), Muhammad Shah (1719–1748), Ahmad Shah (1748–1754), Alamgir II(1754–1759), Akbar II(1806–1837), Bahadur Shah II(1837–1857).

11. (4) Odisha government has launched a rainwater harvesting scheme named 'Community Harnessing and Harvesting Rainwater Artificially from Terrace to Aquifer (CHHATA).
Odisha - Simlipal biosphere reserve
Madhya Pradesh - Pachmarhi and Panna
Tamil Nadu, Kerala and Karnataka - Nilgiri

12. (4) Climate is the description of the long-term pattern of weather particular area. Some scientists define climate as the average weather for a particular region and time-period usually taken over 30-years.

13. (2) Volleyball - Six players Standard Court: 18 metres long and 9 meters wide.

14. (4) Hallur - Karnataka Mehrgarh (Balochistan, Pakistan) is probably the earliest known centre of agriculture in South Asia. The oldest known example of the lost-wax technique comes from a 6,000-year-old wheel-shaped copper amulet found at Mehrgarh.
Jadeite – found in Daojali Hading (Assam).
On the opposite bank of Belan river, Mahagara(Uttar Pradesh) is located.

15. (2) Ravi Kumar S - President of the Deputy Chief Operating Officer
Pradeep Singh Kharola - CMD of India Trade Promotion Organisation (ITPO)
Bhushan Akshikar - MD of Glaxosmithkline.

16. (2) Rajasthan launched a special Health Care scheme 'Anchal' in the Karauli district for pregnant women. During the campaign, over 13000 pregnant women are tested for their haemoglobin levels and are advised to take right medicines. Under this campaign, it is also ensured that the Auxiliary Nurse Midwife and ASHA workers in the district are in constant touch with the pregnant women of their respective areas.

17. (2) Alkali metals (1st Group) consist of the chemical elements lithium (Li), Sodium (Na), Potassium (K), rubidium (Rb), Caesium (Cs), and Francium (Fr).
Halogen elements(17th Group) are Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Astatine (At), and Tennessine (Ts).

Actinides - atomic number between 90 to 103 elements are actinides.

18. (3) The first cotton textile mill in India was established at Fort Glastor near Kolkata in 1818. Large scale production of cotton started in Mumbai in 1854.
The 'first textile mill' in Haryana was established in the year 1937 at Bhiwani.The 'first textile mill' in Haryana was established in the year 1937 at Bhiwani.

19. (3) Vidya Purie was the founder of India Today.
The Idea of India was written by Sunil Khilnani.
The History of British India was written by James Mill.

20. (2) Goa has Bhagwan Mahavir Wildlife Sanctuary, Bondla Wildlife Sanctuary, Netravali Wildlife Sanctuary, Cotigao Wildlife Sanctuary, Mhadei Wildlife Sanctuary, Salim Ali Bird Sanctuary, Anshi National Park.

21. (3) Sperm cells are called eukaryotic cells.

22. (1) Hoarding - The purchase and warehousing of large quantities for benefiting from future price increases.

23. (3) The "Father of Plate Tectonics", Alfred Wegener proposed "Continental Drift" in 1912.

24. (1) Akbar - Farrukh-Fal Mirza, Al-Aman Mirza, Mirza-Muhammad Hakim
Jahangir - Daniyal, Muradmirza Hussain, Hassan
Shah Jahan - Khusrau Mirza

25. (3) Ghoomar - Rajasthan
Kalbeliya - Rajasthan
Bidesia - Bihar
Kummatti - Kerala
Bihar has Valmiki National Park, Valmiki Vanya Prani Sanctuary, West Champaran, Bhimbandh Sanctuary, Pant Vanya Prani Sanctuary, Kaimur Sanctuary, Gautam Buddha Bird Sanctuary, Udaypur Vanya Prani Sanctuary,Nagi Dam Bird Sanctuary, Nakti Dam Bird Sanctuary, Vikramshila -, Kanwar Jheel Bird

Sanctuary, Baralia Jheel Salim Ali Jubba Sahni Bird Sanctuar, Kusheshwar Asthan Bird Sanctuary

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

GENERAL INTELLIGENCE & REASONING

1. (3) $20 \div 4 \times 8 + 16 - 15 = 11$
interchanging $\times, \div$
$20 \times 4 \div 8 + 16 - 15 = 11$
$\Rightarrow 20 \times \dfrac{1}{2} + 1 = 11 \Rightarrow 11 = 11$

2. (2) L % M + N * O $ P

M$^+$ P
|$^-$ |$^+$
L——N̄——O$^+$

So, L is daughter of P.

3. (1) $\dfrac{1}{2}$, $\dfrac{3}{4}$ **1** $\dfrac{5}{4}$
$+\frac{1}{4}$ $+\frac{1}{4}$ $+\frac{1}{4}$

4. (1) $25 + 8 = 33 \times 8 = 264$
$49 + 8 = 57 \times 8 = 456$
$31 + 8 = 39 \times 8 = 312$

5. (1)
ESCAPE → 5+19+3+1+16+5 = 49
PRISON → 16+18+9+19+15+14 = 91
Similarly,
FREEDOM → 6+18+5+5+4+15+13 = 66

6. (4)
    +3   +3   +3
F   E   I   G   L   I   O   **K**
       +2   +2   +2

7. (3) 4. Pardon
1. Pardoner
3. Parental
5. Parenthesis
2. Parenthetical

8. (1) 11 : 94 :: 23 : ? :: 18 : 150
$11 \times 8 + 6 = 88 + 6 = 94$
$23 \times 8 + 6 = 184 + 6 = 190$
$18 \times 8 + 6 = 144 + 6 = 150$

9. (2)
   +4   +3
I   G   M   J   S   P   V   T
     +3   +4

   +4   +4
D   B   H   E   N   L   R   O
     +3   +3

10. (4) 25 * 4 * 6 * 2 * 17
Putting +, −, ×, =
$\Rightarrow 25 + 4 - 6 \times 2 = 17$
$\Rightarrow 29 - 12 = 17$
$\Rightarrow 17 = 17$

11. (4) $25 \times 0.20 = 5$
$144 \times 0.083 = 12$
$256 \times 0.063 = 16$

12. (3)

Pen | Book | Pins
Compasses
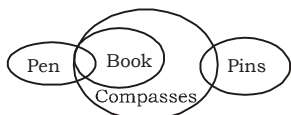
13. (4) 14. (1)

15. (2) $6 \times 10 = 60$
$2 \times 10 = 20 \neq 18$
$4 \times 10 = 40$
$8 \times 10 = 80$

16. (2) 17. (4)

18. (2) THANKFUL (mirror image)
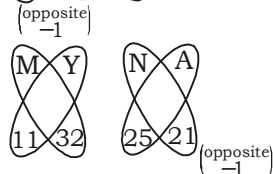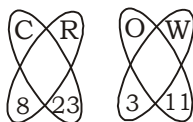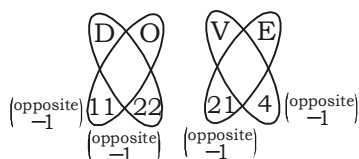
19. (2) $A \times B - C$

A$^+$
|
B——C

So, A is the father of C.

20. (2) S C D

21. (2)

D O / 11 22, V E / 21 4
$\left(\begin{array}{c}\text{opposite}\\-1\end{array}\right)$

C R O W
8 23 3 11
$\left(\begin{array}{c}\text{opposite}\\-1\end{array}\right)$

M Y N A
11 32 25 21
$\left(\begin{array}{c}\text{opposite}\\-1\end{array}\right)$

22. (2) $8 \times 3 - 6 + 4 \div 2 = 49$
interchanging $-$ and $+$, 6 and 3
$8 \times 6 + 3 - 4 \div 2 = 49$
$\Rightarrow 48 + 3 - 2 = 49$
$\Rightarrow 48 + 1 = 49 \Rightarrow 49$

23. (1) Hibiscus is a genus of flowering plant in mallow family.
Similarly,
Pumpkin is a genus Cucurbita of fruit.

24. (3) $Z \xrightarrow{+0} Z \xrightarrow{+0} Z \xrightarrow{+0} Z \xrightarrow{+0} Z$
$X \xrightarrow{-1} W \xrightarrow{-1} V \xrightarrow{-1} U \xrightarrow{-1} T$
$E \xrightarrow{-1} D \xrightarrow{-1} C \xrightarrow{-1} B \xrightarrow{-1} A$

25. (1)
C O O K , D O W N
$\xrightarrow{+1}\xrightarrow{+2}\xrightarrow{+1}\xrightarrow{+2}$, $\xrightarrow{+1}\xrightarrow{+2}\xrightarrow{+1}\xrightarrow{+2}$
D Q P M , E Q X P

O N L Y
$\xrightarrow{+1}\xrightarrow{+2}\xrightarrow{+1}\xrightarrow{+2}$
P P M A

1. (3) 2. (2) 3. (1) 4. (1) 5. (1)
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8. (4) "while" is followed by verb with "ing" form.
"While executing is correct expression". It means two actions are going on simultaneously.

13. (1) replace "had visited" with "visited".
The past perfect tense is used to sequence events in the past to show which event happened first. For a single event, Past Indefinite Tense is used.

16. (1) "frisk" is wrongly spelt.
Meaning-
(i) frisk (Transitive verb) - to search (a person) for something (such as concealed weapons) by running the hand rapidly over the clothing and through the pocket. (टटोल के तलाशी लेना).
(ii) frisk (Intransitive verb) - To leap, skip, or dance in a lively or playful way, (Gambol). (उछल-कूद करना).

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

Words	Meaning in English	Meaning in Hindi
Calamity	disaster, tragedy.	कठोर विपत्ति, आपदा
Dispatch	to send somebody/something to a place. *Ant. Acquire.*	भेजना
Entourage	a retinue of attendants, a group of people who travel with an important or famous person.	अनुगामी, परिचारण
Foliage	the leaves of plants.	पेड़ पौधे के पत्ते पत्तियां
Gambit	An opening in chess in which a minor piece or a pawn is sacrificed to gain an advantage. *Syn. ploy, stratagem, tactics.*	चाल, तिगड़म
Humble	not proud or haughty, *Syn. servile, modest.* *Ant. arrogant.*	विनम्र
Immense	huge, gigantic, very large.	अत्यधिक, असीम, अपार
Laborious	Requiring much physical effort and time. *Syn. industrious, toilsome, painstaking, strenuous.* भरा *Ant. facile, easy, effortless, lazy.*	कठिन, श्रमसाध्य, मेहनत
Inundate	i). To cover with flood. ii). To give or send somebody so many things that he/she can't deal with them all. *Syn. overflow, overwhelm.*	बाढ़ आ जाना किसी के पास चीजों का ढेर लगा देना की वह उनसे निपट न सके
Rusk	a rectangular shaped, hard dry biscuit.	उनसे निपट न सके