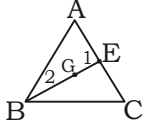


QUANTITATIVE APTITUDE

1. (2) $\sqrt{\frac{1+\cos A}{1-\cos A}}$
 $= \frac{\sqrt{1+\cos A}}{\sqrt{1-\cos A}} \times \frac{1+\cos A}{1+\cos A} = \frac{1+\cos A}{\sqrt{1-\cos^2 A}}$

$= \frac{1+\cos A}{\sqrt{\sin^2 A}} = \frac{1}{\sin A} + \frac{\cos A}{\sin A}$
 $= \operatorname{cosec} A + \cot A$

2. (2)



Median $BG = 12\text{ cm}$

ATQ,

2 unit $\rightarrow 12\text{ cm}$

3 unit $\rightarrow 18\text{ cm}$

\therefore Length of $BE = 18\text{ cm}$

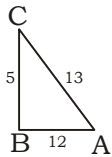
3. (3) Required ratio

$A : B = (31+24+18+29+12+40) : (58+36+26+37+33+44)$
 $= 154 : 234 = 77 : 117$

4. (2) $m^2 x^2 + 2mnx + n^2$
 $= m^2 x^2 + mnx + mnx + n^2$
 $= mx(mx+n) + x(mn+n)$
 $= (mx+x)(mx+n)$

$\therefore mx+n$ is the factor of $m^2 x^2 + 2mnx + n^2$.

5. (2)



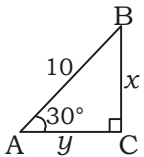
$\tan A = \frac{5}{12}$

$\sin A + \sin B + \sin C$

$= \frac{5}{13} + \sin 90^\circ + \frac{12}{13}$

$= \frac{5}{13} + 1 + \frac{12}{13} = \frac{30}{13} = 2\frac{4}{13}$

6. (3) ATQ,



In $\triangle BAC$

$\sin 30^\circ = \frac{BC}{10}$

$\Rightarrow \frac{1}{2} = \frac{BC}{10}$

$\Rightarrow BC = 5\text{ cm}$
 Length of $BC = 5\text{ cm}$

7. (3) Let, Total distance = $x\text{ km}$
 ATQ,

$\frac{x}{30} - \frac{x}{45} = \frac{15}{60}$

$\Rightarrow \frac{x}{90} = \frac{1}{4}$

$x = 22.5\text{ km}$

Total journey = 22.5 km

8. (3) Salary : tax = $(4 : 1) \times 3$

Saving : Salary = $(1 : 3) \times 4$

Income : Saving : tax

$12 : 4 : 3$

Expense : Saving

$(12 - 7) : 4 = 5 : 4$

9. (*) Required ratio

$(12 + 15) : 63 = 27 : 63 = 3 : 7$

(No correct option is given by SSC.)

10. (1)

A	B	B	C
1200	1100	600	500
12 :	11 :	6 :	5
A :	B :	C	
12 :	11		
6 :	5		
72 :	66 :	55	

Speed of $C = \frac{17}{3}\text{ m/sec.}$

11. (3) Required ratio

$= 100 \times \frac{65}{100} \times \frac{35}{100} :$

$40 \times \frac{90}{100} \times \frac{40}{100}$

$= \frac{2275}{100} : \frac{1440}{100} = 455 : 288$

12. (4) Profit = $12.5\% = \frac{1}{8}$,

Cost Price = 8 unit

Selling Price = 9 unit

ATQ, 9 units = 1000 gm

8 units = 888.8 gm

13. (2) LCM of 4, 7 = 28

$28 \overline{) 999} \{ 35$

$\underline{84}$

$\underline{159}$

$\underline{140}$

$\underline{19}$

The largest three digit number of divisible by 4 and 7 = $999 - 19 = 980$

14. (2) ATQ,

$A - 10 > 80 < 8$
 $B - 16 > 80 < 5$

work done in 2 days = $8 + 5 = 13$

work done in 12 days = $13 \times 6 = 78$ units

Remaning work = $(80 - 78) = 2$

Remaning work will be done

by A in $\frac{2}{8}$ days.

\therefore Total number of days =

$12 + \frac{2}{8} = 12\frac{1}{4}$ days

15. (4) ATQ,

$a\sqrt{3} = 7\sqrt{3}$

$\Rightarrow a = 7$

Surface area of cube = $6a^2 = 49$

$\times 6 = 294\text{ cm}^2$

16. (1) ATQ,

$\triangle BPQ \cong \triangle ASR$

$\angle Q = \angle R = 108^\circ$

In $\triangle ASR$

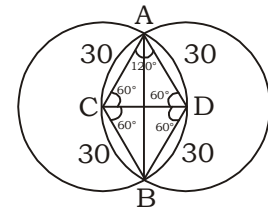
$x + x + 3x = 180^\circ$

$\Rightarrow 5x = 180^\circ$

$\Rightarrow x = 36^\circ$

$\angle ASR = 3 \times 36 = 108^\circ$

17. (4) ATQ,



Area of intersecting region =

$= 2[\pi \times 900 \times \frac{120^\circ}{360^\circ} - \frac{1}{2} \times 30 \times 30 \times \sin 120^\circ]$

$= 2 \left[300\pi - \frac{1}{2} \times 900 \times \frac{\sqrt{3}}{2} \right]$

$= [600\pi - 450\sqrt{3}] \text{ cm}^2$

18. (2) CP = 100, MRP = 120

ATQ,

120 units = 2400

100 units = 2000

Selling price = $2400 \times \frac{90}{100}$

$= ₹2160$

Profit% = $\frac{160}{2000} \times 100 = 8\%$

19. (3) Simple Interest = $30 \times 7 = 210\%$
ATQ,

$$310\% = 1550$$

$$210\% = \text{Rs.}10500$$

20. (3) Amit 88 in Physics and 98 in IT. Diksha 92 in English, 96 in Maths and 88 in Biology. Amit and Diksha scored highest in more than two subjects.

21. (4) ATQ,

$$x + y + z = 0$$

$$\frac{x^2}{yz} + \frac{y^2}{xz} + \frac{z^2}{xy} = \frac{x^3 + y^3 + z^3}{xyz}$$

$$= \frac{3xyz}{xyz} = 3$$

22. (4) We know that,

$$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$$

$$\Rightarrow a + b + c = \sqrt{9 + 16}$$

$$\Rightarrow a + b + c = 5$$

$$\Rightarrow (a + b + c) - 3 = 2$$

23. (2) A number is divisible by 8, when its last three digits is divisible by 8.

So, possible values of x and y (0,0), (0,8) (1,6) (2,4) (3,2) (4,0) (4,8) (5,6) (6,4) (7,2) (8,0) (8,8) (9,6)

Height possible values = 13

24. (4)



ATQ,

$$\pi r^2 \times \frac{45^\circ}{360^\circ} = 308$$

$$\Rightarrow \frac{22}{7} \times r^2 \times \frac{1}{8} = 308$$

$$\Rightarrow r^2 = 2 \times 7 \times 7 \times 8$$

$$\Rightarrow r = \sqrt{49 \times 16}$$

$$\Rightarrow r = 7 \times 4 = 28 \text{ cm}$$

25. (1) Decrease = $20\% = \frac{1}{5}$

Initial : Now

5	:	6
5	:	4
25	:	24

$$\therefore \text{Total decrement} = \frac{1}{25} \times 100 = 4\%$$

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

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

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

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

21. (4) 22. (4) 23. (2) 24. (4) 25. (1)

GENERAL AWARENESS

1. (1) After the 1857 Revolt, The Indian Arms Act of 1878 was enacted during Lord Lytton's time and this act said that no Indians should manufacture, sell, possess, and carry firearms.

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

5. (3) Berzelius discovered cerium, Selenium, Silicon and Thorium.

Auguste Laurent discovered Anthracene, Phthalic Acid, and Carbolic Acid.

Lavoisier is most noted for his discovery of what role oxygen plays in combustion. He recognized and named oxygen (1778) and hydrogen (1783).

6. (3) 2001 - Yash Chopra (Hindi) 2007 - Manna day Benerji (Hindi)

2019 - Rajni Kanth (Tamil) 2020 - Asha Parekh (Hindi) 2015 - Manoj Kumar (Hindi)

7. (2) Madhya Pradesh - Munda, Tansen, Namste Orchha, Ujjain Kumbh

Kerala - Onam, Trissur Pooram, Makaravilakku, Theyyam, Vishu.

8. (4) Avinash Kulkarni - Head of IDRCL

Krishna Srinivasan - Director of APD

Vivek Kumar - CMD of REC

9. (3) According to Article 41 & 802 Rajya Sabha nominates 12 members. They are nominated by the president for six years for their contributions towards art, literature Science & Social Services.

10. (2)

11. (1) Bhagat Singh - Inquilab Zindabad

Ras Bihari Bose - Asia belongs to Asians

Subhash Chandra Bose - Give me blood and I will give you freedom.

12. (4) FIFA Women's World Cup was started in 1991.

2019 FIFA Women's World Cup- France

Unity - The Official FIFA Women's World Cup 2023 Theme.

13. (4) Van der Waals forces exist among all kinds of atoms and molecules.

Centrifugal Force - Weight of an object at the poles and on the equator, A bike making a turn, Vehicle driving around a curve, Equatorial railway, A Washing Machine, A Salad Spinner, Discus Throw

Frictional Force - Driving of a vehicle on a surface, Applying brakes to stop a moving vehicle, Skating, Walking on the road, Writing on notebook/ black board, Flying of aeroplanes, Drilling a nail into wall, Sliding on a garden slide, Lighting a matchstick, Dusting a foot mat/ carpet by beating it with a stick

Centripetal Force - Driving around a circular path, Banked turn of an aircraft, Children's swing, Merry-go-round or carousel, Revolution of planets around the Sun, Washing machine dryer, Liquid mirror telescope, Loops in a roller coaster, Shot-put and hammer throw, Revolution of electrons around the nucleus.

14. (3) Sanjiv Kapoor - CEO of Jet Airways

AK Sood - Principal Scientific Advisor

Rajiv Ranjan - Executive Director of RBI.

15. (1)

16. (4)

17. (3) Koilighugar Waterfall- Mahanadi

Someshwar Water Fall - Godavari

Gokak waterfalls, Kalhati falls, Theertham waterfalls and Manikyadhara falls - Krishna Kunchikal falls is formed by the Varahi river in Karnataka, is the highest water fall in India.

Godavari, 'Dakshin Ganga' - the South Ganges, is the longest river of peninsular India.

18. (1) Golaknath case (1967) - The court reversed its earlier stance that the Fundamental Rights can be amended.

Minerva Mills Case, 1980 is a landmark decision of the Supreme Court, that applied and evolved the basic structure doctrine of the Constitution of India

GENERAL INTELLIGENCE & REASONING

19. (3)
 20. (3) Pallavas - early 4th century to late 9th century
 Cholas - (9th-13th) Century
 Mughals - (1526-1762)
 Delhi Sultanate (1206-1526)
 Ajmer (Rajasthan) was the capital of the Chauhan kings in the twelfth century and later become the Subah headquarter under the Mughals reform by Akbar.
 21. (4) National Institute of Oceanography was established on 1 Jan 1966. The National Institute of Oceanography (NIO) with its headquarters at Dona Paula, Goa, and regional centres at Kochi, Mumbai and Visakhapatnam.
 22. (2)
 23. (4) Cholas - Ottakoothar
 Cheras - Kannanar
 Pallavas - Dandin Bharavi
 24. (2) During the 18th All India Legal Services Authorities' convention, which was held here, National Legal Services Authority Chairman Uday Umesh Lalit unveiled the first digital Lok Adalat driven by artificial intelligence. Rajasthan State Legal Services Authority's (RSLSA) digital Lok Adalat was created by Jupitice Justice Technologies, the organization's technological partner.
 25. (3) On 28th & 29th day of the tenth month according to Tibetan calendar, which according to English calendar falls in the months of December.
 1. (1) 2. (4) 3. (1) 4. (4) 5. (3)
 6. (3) 7. (2) 8. (4) 9. (3) 10. (2)
 11. (1) 12. (4) 13. (4) 14. (3) 15. (1)
 16. (4) 17. (3) 18. (1) 19. (3) 20. (3)
 21. (4) 22. (2) 23. (4) 24. (2) 25. (3)

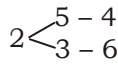
1. (3) $\begin{matrix} E & D & U & C & A & T & I & O & N \\ +2 & +2 & +2 & & & +2 & +2 & +2 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \\ G & F & W & C & A & T & K & Q & P \end{matrix}$ and

$\begin{matrix} P & R & O & F & E & S & S & O & R \\ +2 & +2 & +2 & & & +2 & +2 & +2 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \\ R & T & Q & F & E & S & U & Q & T \end{matrix}$

Similarly, $\begin{matrix} F & A & C & U & L & T & I & E & S \\ +2 & +2 & +2 & & & +2 & +2 & +2 & \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \\ H & C & E & U & L & T & K & G & U \end{matrix}$

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

3. (4) From fig 2 and 3,



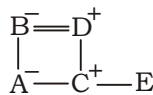
So, $5 \leftrightarrow 3$

4. (2) $14 \times 2 - 6 = 28 - 6 = 22$
 $19 \times 2 - 8 = 38 - 8 = 30$
 $11 \times 2 - 4 = 22 - 4 = 18$

5. (1) $\begin{matrix} 63, & 81, & 7 \\ (7 \times 9) & (9 \times 9) & (7) \\ 84, & 49, & 12 \\ (12 \times 7) & (7 \times 7) & (12) \\ 99, & 121, & 9 \\ (11 \times 9) & (11 \times 11) & (9) \end{matrix}$

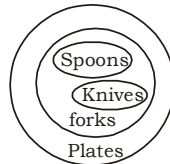
6. (4) (1) $19 \times 7 = 133$
 (2) $26 \times 5 = 130$
 (3) $28 \times 7 = 196$
 (4) $17 \times 9 = 153 \neq 157$

7. (3) $A \# B - C @ D + E$



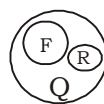
So, A is the sister of E.

8. (4)



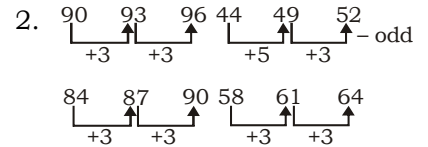
9. (4) $3, 11, 35, 107, 323$
 $3 \times 3 + 2 \quad 11 \times 3 + 2 \quad 35 \times 3 + 2 \quad 107 \times 3 + 2$

10. (1)

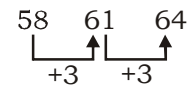
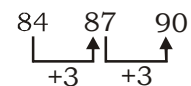
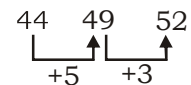
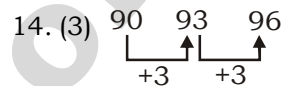


11. (4) rotated anticlockwise 90° .

12. (3) 4. Latitude
 6. Laudanum



13. (3) $\begin{matrix} V-1 & U-1 & T-1 & S-1 & R \\ T-1 & S-1 & R-1 & Q-1 & P \\ H+1 & I+1 & J+1 & K+1 & L \\ J+1 & K+1 & L+1 & M+1 & N \end{matrix}$



15. (2) $P - Q \div R$



So, P is the father of R.

16. (1) 17. (1)

18. (1) Bees live in beehive

Similarly,

Dogs live in kennel

19. (4) Tailor use sewing machine.

Similarly,

Police use Handcuffs.

20. (1)

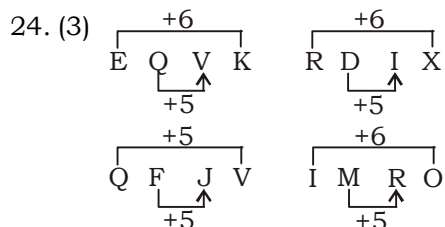
STEAMER $\rightarrow 19+20+5+1+13+5+18=81$
 CRUISE $\rightarrow 3+18+21+9+19+5=75$
 SUBMARINE $\rightarrow 19+21+2+13+1+18+9+14+5=102$

21. (2) $\begin{matrix} R-2 & P-2 & N-2 & L-2 & J \\ L+2 & N+2 & P+2 & R+2 & T \\ V-3 & S-3 & P-3 & M-3 & J \end{matrix}$

22. (2) $66 * 6 * 12 * 3 * 15 = 12$
 Putting +, -, \div , \times
 $\Rightarrow 66 + 6 - 12 \div 3 \times 15 = 12$
 $\Rightarrow 66 + 6 - 4 \times 15 = 12$
 $\Rightarrow 72 - 60 = 12$
 $\Rightarrow 12 = 12$

ENGLISH LANGUAGE AND COMPREHENSION

23. (4) $54 - (3 \times 12) \div (8)^{\frac{1}{3}} + (11 \times 4) + 6 = 69$
 interchanging 3 and 4,
 $54 - (4 \times 12) \div (8)^{\frac{1}{3}} + (11 \times 3) + 6 = 69$
 $\Rightarrow 54 - 48 \div 2 + 33 + 6 = 69$
 $\Rightarrow 54 - 24 + 39 = 69$
 $\Rightarrow 30 + 39 = 69$
 $\Rightarrow 69 = 69$



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

5. (1) "beguiling" is incorrectly spelt.
 Meaning - to deceive or delude, to charm or delight.
 (बेवकूफ बनाना, मोह लेना)
 Syn. - Cunning, devious, dodgy
 Ant. - Ingenuous, innocent, guileless.
 Ex: - i) Some thugs beguiled him into giving a large sum of money.
 ii) He beguiled us with his charm and manners.
8. (2) "Access" is wrongly spelt.
 Meaning - reach (पहुँच)
 Ex: - A canal provides access to the river.
12. (2) Replace "enter" with its past form "entered". (as the action occurred in past)
 Also 'into' is superfluous here but commission ignored it.

17. (4) Replace "with" by "in". "Rich in vitamin" is correct expression.
20. (1) Meaning of idioms-
Move the needle - to make change that is noticeable.
Burn bridges- do something which makes it impossible to return to the earlier position.
Spill the beans- reveal a secret
Get a second wind- a return of strength on energy that makes it possible to continue in an activity or start again.
1. (1) 2. (1) 3. (1) 4. (2) 5. (4)
 6. (1) 7. (2) 8. (2) 9. (2) 10. (4)
 11. (4) 12. (2) 13. (1) 14. (3) 15. (1)
 16. (3) 17. (4) 18. (4) 19. (4) 20. (1)
 21. (3) 22. (4) 23. (2) 24. (1) 25. (2)

Words	Meaning in English	Meaning in Hindi
Anodyne	something serving to alleviate pain. Something that soothes, calms or comforts. Ex:- The dentist prescribed an anodyne after the root canal.	पीड़ा नाशक
Adversity	difficulties or problems Ant. fortune.	कठिनाइयाँ, समस्याएं
Affliction	A State of pain, suffering, distress or agony.	पीड़ा, रोग, मुसीबत की अवस्था
Anthropology	The holistic, scientific and social study of humanity.	मानवविज्ञान
Caravan	A convoy or procession of travellers.	काफिला
Exemplary	Very good, that can be an example to other people. Syn. modal, classic. Ant. unsatisfactory.	श्रेष्ठ, औरों के लिए आदर्श
Enervate	to reduce/drain strength or energy.	थकाना, हतोत्साहित करना
Flattering	Showing or expressing gratifying respect or admiration.	चापलूसी
Horde	A group of people	झुंड, भीड़
Imitative	fit to be copied as an example.	अनुकरणशील, नकल करने लायक
Lexicography	the art of compiling, writing and editing dictionaries.	कोशलेखन
Philosophy	the love of wisdom.	दर्शनशास्त्र
Penury	Poverty.	गरीबी
Zoonic	obtained from animal substance.	पशु से प्राप्त