

ENGLISH LANGUAGE AND COMPREHENSION

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

EXPLANATION:-

7. (3) 'One of the +superlative degree + plural noun+ singular verb' is the correct structure.
8. (3) 'In the pickle' is the correct idiom, means- in a troublesome or difficult situation.
16. (4) 'Disseminate' is incorrectly spelt here, means- to spread information, knowledge, ideas etc.
18. (4) Replace 'widely' with 'wide'.
19. (4) 'Fortuitous' is incorrectly spelt here, means- occurring by chance
20. (4) Replace 'landslide' with 'landslides'. 'one of the' is followed by a plural noun.

WORD

Anthropology	Study of human being & their ancestors.
Brazen	Without embarrassment, especially in a way which shocks people
Dilate	To become enlarged or widened
Elucidate	To make something clearer by explaining it
Ethnology	The scientific study and comparison of human races
Intrepid	Without any fear of danger
Invulnerable	Incapable of being wounded, injured, or harmed
Litigation	The process of taking legal action in a court of law
Lucid	Clear and easy to understand
Magnify	To make something seem more important than it really is
Malleable	Capable of being altered or controlled by outside forces or influences
Monarch	A king or queen
Nascent	Beginning to exist; not yet completely developed
Obfuscate	To make something unclear and more difficult to understand
Obsequious	Making a great effort to please or agree with somebody, especially somebody who is important and powerful
Raisins	A dried grape, used in cakes, etc.
Reserved	Shy and keeping your feelings hidden
Smelly	Having a bad smell
Timid	Easily frightened; shy and nervous
Timorous	Showing or suffering from nervousness or a lack of confidence, scared, gutless
Vault	A strongroom or compartment (often made of steel) for safekeeping of valuables, crypt

MEANING IN HINDI

मानवशास्त्र
निर्लज्ज, बेशर्म, लज्जाहीन
चौड़ा करना
स्पष्ट करना
मानव जाति विज्ञान
निडर
अभेद्य, जिसको नुकसान न पहुँचाया जा सके
अभियोग
समझने में स्पष्ट और सरल, सुबोध
बढ़ा-चढ़ा कर बताना
लचीला, जो आसानी से प्रभावित या परिवर्तित हो जाते हैं
सम्राट, शासक
नवजात, विकासशील
उलझन में डालना; भ्रांति पैदा करना
चापलूस
किशमिश
संकोची तथा मनोभावों को छिपाकर रखने वाला
बदबूदार
डरपोक
कायर
तिजोरी

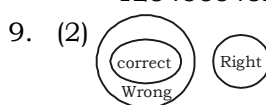
GENERAL INTELLIGENCE & REASONING

1. (4) In equation 1, if we change 6 and 4, we have-
 $10 \times 4 - 30 \div 6 + 20$
 $= 10 \times 4 - 5 + 20$
 $= 40 - 5 + 20 = 55$
In equation 2, if we change 6 and 4, we have-
 $8 - 6 \times 5 + 4 \div 2$
 $= 8 - 6 \times 5 + 2$
 $= 8 - 30 + 2 = -20$
2. (1) $\begin{matrix} N \\ \uparrow \\ R^+ + T^- \\ \uparrow \\ H^- \leftarrow S \end{matrix}$
So, H is daughter's daughter of N.
3. (1)
4. (1) $BASE = 27 \Rightarrow$
Base Place value of letters $2 + 1 + 19 + 5 = 27$

Similarly,

$$COLLECTION \Rightarrow 3 + 15 + 12 + 12 + 5 + 3 + 20 + 9 + 15 + 14 = 110$$

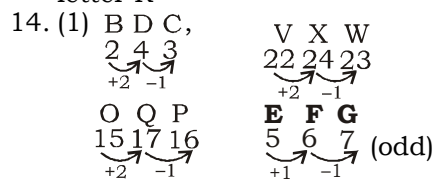
5. (1)
6. (4)
7. (2)
8. (2) $1111 \times 1111 = 1234321$,
 $111 \times 111 = 12321$
 $11111 \times 11111 = 123454321$
 $\neq 1234554321$
 $111111 \times 111111 = 12345654321$



So, both conclusion I and II follow.

10. (2)
11. (3) 15
12. (2) $m c \underline{b} b c m / \underline{m} c b b c \underline{m} / m c$
 $b b c m$

13. (4) The letter P is opposite to the letter R



14. (1) $66A \ 3D \ 11B \ 43C \ 48D \ 12$
Putting the value of A, B, C, D and we have
 $66 \times 3 \div 11 + 43 - 48 \div 12$

$$= 66 \times \frac{3}{11} + 43 - 4 = 18 + 43 - 4 = 57$$

15. (4) $66A \ 3D \ 11B \ 43C \ 48D \ 12$
Putting the value of A, B, C, D and we have
 $66 \times 3 \div 11 + 43 - 48 \div 12$
 $= 66 \times \frac{3}{11} + 43 - 4 = 18 + 43 - 4 = 57$
16. (2) $M A Z Z A$
 $\downarrow \downarrow \downarrow \downarrow \downarrow$
 $O B B A C$
and
 $B L A C K$
 $\downarrow \downarrow \downarrow \downarrow \downarrow$
 $D M C D M$

Similarly, F U Z Z Y
 $\begin{matrix} +2 & +1 & +2 & +1 & +2 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ H & V & B & A & A \end{matrix}$

17. (3) $13, 14, 108 \Rightarrow (13+14) \times 27 \times 4 = 108$
 $51, 12, 252 \Rightarrow (51+12) \times 63 \times 4 = 252$

Similarly,

$29, 14, 172 \Rightarrow 29+14 = 43 \times 4 = 172$

18. (1) 5. Child
 2. School
 1. College
 3. Employment
 4. Salary

19. (4) $183 : 6 :: 164 : 4 :: 122 : 6$

$\Rightarrow 183 : 6 \Rightarrow 18 \frac{183}{31} = 6 = \frac{18}{3} = 6$

$\Rightarrow 164 : 4 \Rightarrow \frac{164}{31} = 4 = \frac{16}{4} = 4$

Similarly, $\frac{122}{31} = 6 = \frac{12}{2} = 6$

20. (4)

21. (4) $18, 25, 46 \Rightarrow 18+7 \Rightarrow 25+21=46$
 $24, 31, 52 \Rightarrow 24+7 \Rightarrow 31+21=52$

Similarly,

$13, 20, 41 \Rightarrow 13+7 \Rightarrow 20+21=41$

22. (3) N A Similarly, O B
 $\begin{matrix} +5 & +5 & & +1 & +5 \\ \downarrow & \downarrow & & \downarrow & \downarrow \\ S & F & & T & G \end{matrix}$

23. (2) Dispersion of light

24. (3) $\begin{matrix} 36 & 18 & 54 & 27 & 81 & 40.5 & 121.5 \\ \times 0.5 & \times 3 \times 0.5 & \times 3 \times 0.5 & \times 3 \end{matrix}$

25. (2)

ANSWER KEY

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

QUANTITATIVE APTITUDE

1. (2) Total marks in history for 2016 = 40

Total marks in civics for both years = $(40 + 60) = 100$

\therefore Percentage marks in history

to marks in civics = $\frac{40}{100} \times 100 = 40\%$

2. (4) For company A,
 Income = 35k
 Expenditure = 45k
 \therefore Loss = 10k

$\therefore \% \text{ Loss} = \frac{10,000}{35,000} \times 100 = 28.57\%$

For company B,
 Income = 50k
 Expenditure = 40k
 \therefore Gain = 10k
 For company C,
 Income = 40k
 Expenditure = 45k

\therefore Loss = 5k

\therefore Percentage loss = $\frac{5000}{4000} \times 100 = 12.5\%$

For company D,

Income = 40k

Expenditure = 30k

\therefore Gain = 10k

For company E,

Income = 50k

Expenditure = 45k

Gain = 50k - 45k = 5k

\therefore Company A suffers most loss.

3. (1) $\frac{(0.91)^3 + (0.09)^3}{[(0.91)^2 - 0.0819 + (0.08)^2]}$
 $= \frac{(0.91)^3 + (0.09)^3}{(0.91)^2 - .91 \times 0.09 + (0.09)^2}$
 $= 0.91 + 0.09$
 $= \left[\frac{a^3 + b^3}{a^2 - ab + b^2} = a + b \right]$
 $= 1$

4. (1) First statement:
 Combined price of J and K = $650 + 550 = 1200$

Combined price of L and M = $250 + 350 = 600$

\therefore Difference = 600

\therefore Difference percentage = $\frac{600}{600} \times 100 = 100\%$

Statement is correct.

St- II

Combined profit of N and P = $200 + 300 = 500$

Combined cost price of K and M = $550 + 450 = 1000$

\therefore Ratio of Profit of N and P and cost price of K and M = $500 : 1000 = 1 : 2$

Statement is incorrect.

5. (2) Total population of P = $150 + 250 + 175 + 100 + 50 = 725$
 Total population of Q = $300 + 200 + 125 + 75 + 150 = 850$
 \therefore Difference = $850 - 725 = 125$

6. (3) Two digits even numbers are 10, 12, 14, 16, ..., 98
 \therefore Sum of all numbers = $10 + 12 + 14 + 16 + \dots + 98$
 $= 2[5 + 6 + 7 + \dots + 49]$
 $2 \times [1225 - (1+2+3+4)]$
 $= 2 \times 1215 = 2430$

7. (2) $117 \div 45$ of $\left(\frac{1}{5}\right) + \left(\frac{12}{5}\right) \times \left(\frac{20}{3}\right)$

$= 117 \div 45 \times \frac{1}{5} + \left(\frac{12}{5}\right) \times \left(\frac{20}{3}\right)$

$= 117 \div 45 + \left(\frac{12}{5} \times \frac{20}{3}\right)$
 $= 117 \div 9 + 16$
 $= 13 + 16 = 29$

8. (3) $\frac{1 - \sin A}{\cos A} + \frac{\cos A}{1 - \sin A}$
 $= \frac{(1 - \sin A)^2 + \cos^2 A}{\cos A(1 - \sin A)}$
 $= \frac{2(1 - \sin A)}{\cos A(1 - \sin A)} \Rightarrow 2 \sec A$

9. (2) Sum of age of five children = (5×15) years = 75 years
 Sum of age of children and their father, mother = $7 \times 25 = 175$

$F + M = 175 - 75$

$M + 4 + M = 100$

[As $F = M + 4$]

$M = \frac{100 - 4}{2} \Rightarrow M = 48$

10. (d) $N + \frac{1}{N} = \sqrt{3}$
 $N^6 = -1$

Now, $N^6 + \frac{1}{N^6} + 11$
 $= -1 - 1 + 11 = 9$

11. (1) Let, Total amount of money = 100%
 After buying wheat flour, remaining money = 80%
 Money spend on cooking oil =

$80\% \times \frac{25}{100} = 20\%$

\therefore Remaining money = $80\% - 20\% = 60\%$

ATQ,

$60\% \equiv 900$

$100\% \equiv \frac{900}{60} \times 100$

$= 1500$

Nakul had Rs1500.

12. (1) Let, sum is P
 Simple interest for 5 years

$= \frac{P \times 5 \times 8}{100} \Rightarrow \frac{40}{100} P$

Simple interest for 6 years

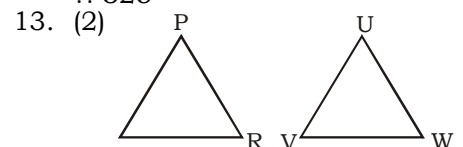
$= \frac{P \times 6 \times 8}{100} = \frac{48}{100} P$

ATQ, $\frac{48P}{100} - \frac{40P}{100} = 26$

Or, $P = \frac{2600}{8}$

Or, $P = 325$

$\therefore 325$



$$\Delta PQR \sim \Delta UVW$$

$$\text{So, } 120 \equiv 240$$

$$1 \equiv 2$$

$$30 \equiv 60$$

$$\therefore \text{Length of UV} = 60 \text{ cm}$$

$$14. (2) \cos(A+B) = 0$$

$$\text{Or, } \cos(A+B) = \cos 90^\circ$$

$$\text{Or, } A+B = 90^\circ$$

$$\text{And, } \sin(A-B) = 0$$

$$\text{Or, } \sin(A-B) = \sin 0$$

$$\text{Or, } A-B = 0$$

$$\therefore A = 45^\circ$$

$$A = B \text{ and } B = 45^\circ$$

$$15. (1) \text{ Let radius of hemisphere} = r \text{ cm}$$

$$\therefore \text{Volume of hemisphere}$$

$$= \frac{2}{3} \pi r^3 \text{ cm}^3$$

$$\text{Volume of cylinder} = \frac{22}{7} \times 12 \times 24 \times 12$$

$$\text{ATQ,}$$

$$24 \times \frac{2}{3} \times \frac{22}{7} \times r^3 = \frac{22}{7} \times 144 \times 24$$

$$\text{Or, } r^3 = 12 \times 12 \times \frac{3}{2}$$

$$r^3 = 216$$

$$r^3 = (6)^3$$

$$r = 6$$

$$\therefore \text{Radius of hemisphere is 6 cm.}$$

$$16. (1) \text{ Perimeter} = (7 + 9 + 8) \text{ cm}$$

$$24 \text{ cm}$$

$$\text{Half perimeter (s)} = \frac{24}{2} \text{ cm}$$

$$= 12 \text{ cm}$$

$$\therefore \text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \text{ unit}^2$$

$$= \sqrt{12 \times (12-7) \times (12-9) \times (12-8)}$$

$$= \sqrt{12 \times 5 \times 3 \times 4} \text{ cm}^2$$

$$= 12\sqrt{5} \text{ cm}^2$$

$$17. (2) \sec x + \tan x = 5$$

$$\text{We know,}$$

$$\sec^2 x - \tan^2 x = 1$$

$$(\sec x - \tan x)(\sec x + \tan x) = 1$$

$$\sec x - \tan x = \frac{1}{5}$$

$$\operatorname{Cosec} x - \cot x = \frac{1}{3}$$

$$\text{We know}$$

$$\operatorname{cosec}^2 x - \cot^2 x = 1$$

$$(\operatorname{cosec} x - \cot x)(\operatorname{cosec} x + \cot x) = 1$$

$$\operatorname{cosec} x + \cot x = 3$$

$$\text{Now, } \sec x - \tan x + \operatorname{cosec} x =$$

$$\cot x = \frac{1}{5} + 3$$

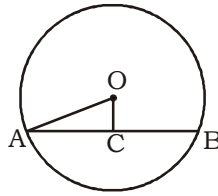
$$\text{Or, } (\sec x + \operatorname{cosec} x) - (\tan x -$$

$$\cot x) = \frac{16}{5}$$

$$(\sec x + \operatorname{cosec} x) - (\tan x - \cot x) = 3.2$$

$$18. (1) \text{ Length of chord AB} = 30 \text{ cm}$$

$$\text{Half of length of chord} = 15 \text{ cm}$$



$$\therefore OA = \sqrt{(8)^2 + (15)^2} = 17$$

$$\therefore \text{Diameter} = (17 \times 2) \text{ cm}$$

$$= 34 \text{ cm}$$

$$19. (1) \text{ Let, cost price of an article} = 100$$

$$\text{Selling price of an article} = 120$$

$$\text{ATQ, } \frac{9}{10} \equiv 120$$

$$1 \equiv 133.33$$

$$\therefore \text{Profit} = (133.33 - 100) = 33.33$$

$$\therefore \% \text{ Profit} = \frac{33.33}{100} \times 100$$

$$= 33.33\%$$

$$20. (4) \text{ Rahul} = 10 \quad \text{Sonu} = 15$$

$$\therefore \text{Total efficiency} = 3 + 2 = 5$$

$$\text{In 4 days, they worked} = 5 \times 4 \text{ unit} = 20 \text{ units}$$

$$\therefore \text{Left work} = 30 - 20 \text{ units} = 10 \text{ units}$$

$$\therefore \text{Part of work remaining} = \frac{10}{30}$$

$$= \frac{1}{3}$$

$$21. (2) \frac{(a+b)^2 - (a-b)^2}{ab}$$

$$\text{As we know, } (a+b)^2 - (a-b)^2 = 4ab$$

$$= \frac{4ab}{ab} = 4$$

$$22. (1) \text{ Total distance covered by car} = 300 \text{ km}$$

$$\text{Total time taken by truck}$$

$$= \frac{100}{200} + \frac{100}{300} + \frac{100}{600} \text{ hrs.}$$

$$= \frac{300 + 200 + 100}{600} \text{ hrs.}$$

$$= 1 \text{ hr}$$

$$\therefore \text{Average speed of truck}$$

$$= \frac{300}{1} \text{ km/hr}$$

$$300 \text{ km/hr}$$

$$23. (1) \text{ Let, marked price} = 100$$

$$\text{Equivalent discount} = 30\% +$$

$$20\% - \frac{30 \times 20}{100}$$

$$= (50 - 6)\%$$

$$= 44\%$$

$$\text{ATQ, } (100 - 44) \equiv 560$$

$$1 \equiv 10$$

$$100 = 1000$$

$$\therefore \text{Marked price is Rs. 1000}$$

$$24. (3) \text{ Ratio of money P, A, R} =$$

$$7 : 9 : 4$$

$$\text{ATQ, } \frac{3}{2} \equiv 1500$$

$$2 \equiv 1000$$

$$\therefore \text{Difference between P and Q is 1000.}$$

$$25. (1) \text{ Let, Sides of triangle are a, b, c unit.}$$

$$\text{Area of circumcircle} = \pi r^2 =$$

$$\pi \left(\frac{abc}{4\Delta} \right)$$

$$\text{ATQ,}$$

$$a^2 \times b^2 \times c^2 = 1024$$

$$\text{Or, } (abc)^2 = 32^2$$

$$\text{Or, } abc = 32$$

$$\pi \left(\frac{abc}{4\Delta} \right)^2 = 16\pi$$

$$\text{Or, } \frac{abc}{4\Delta} = 4$$

$$\text{Or } \Delta = 2$$

$$\therefore \text{Area of triangle} = 2 \text{ unit}^2$$

ANSWER KEY

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

$$6. (3) 7. (2) 8. (3) 9. (2) 10. (4)$$

$$11. (1) 12. (1) 13. (2) 14. (2) 15. (1)$$

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

$$21. (2) 22. (1) 23. (1) 24. (3) 25. (1)$$

GENERAL AWARENESS

7r the First Anglo-Sikh War, established the princely state of Jammu and Kashmir under the suzerainty of the British Indian Empire.

2.(4) Indian Military has divided the LAC into 3 sectors - the northern sector (some times also called western sector) across Ladakh and the Chinese-held Aksai Chin, the central sector across Himachal Pradesh and Uttarakhand states, and the eastern sector across Sikkim and Arunachal Pradesh states.

3.(1) Rumi, Muslim poet, jurist, theologian and Sufi mystic is regarded as one of the greatest Sufi spiritual masters and poets, famous for his epic Masnavi-i Manavi.

4.(4) Dada Shab Phalke Award was first awarded in 1969. It was first awarded to Devika Rani.

In 2021, it was given to Deepika Padukone and Akshay Kumar.

Some famous persons awarded Dada Shab Phalke

Satyajit Ray, Raj Kapoor, Lata Mangeshkar, Bhupen Hazarika, Dilip Kumar, Rajkumar, Yash Chopra, Dev Anand, Soumitra Chatterjee, Shashi Kapoor, Manoj Kumar, Vinod Khanna, Amitabh Bachchan, Rajinikanth, Asha Parekh.

5.(1) First Generation Computers – (1940-1956) Vacuum Tube

Second Generation Computers – (1956-1963) Transistor

Third Generation Computers – (1964-1971) Integrated Circuit.

Fourth Generation Computers – (1971-Present) Microprocessor

Fifth Generation Computers – (Present and Beyond) Artificial Intelligence

6.(2) The should be 35 years.

7.(4) Trees of tropical evergreen forest are ebony, mahogany, rosewood, rubber and cinchona.

Teak is the most dominant species of tropical deciduous forests. Bamboos, sal, shisham, sandalwood, khair, kusum, arjun, mulberry are other commercially important species.

8.(4) Vitamin A – Retinol, Vitamin B1 – Thiamin, Vitamin B2 – Riboflavin, Vitamin B3 – Niacin, Vitamin B5 – Pantothenic acid, Vitamin B6 – Pyridoxine, Vitamin B7 – Biotin, Vitamin B9 – Folic Acid, Vitamin B12 – Cobalamin, Vitamin C – Ascorbic Acid, Vitamin D – Calciferol, Vitamin E – Tocopherol, Vitamin k – Phytonadione

9.(4) Home in the World: A Memoir – **Amartya Sen**

The Great Big Lion – **Chryseis Knight**

In an Ideal World – **Kunal Basu**

10.(1)	Capital	Currency
Kyrgyzstan	Bishkek	Som
Kazakhstan	Astana	Tenge
Tajikistan	Dushanbe	Somoni
Uzbekistan	Tashkent	Som

Turkmenistan Ashgabat Manat

11.(1) Newton's 3rd Law: If an object A exerts a force on object B, then object B must exert a force of equal magnitude and opposite direction back on object A.

12.(3) **Pope Francis** – The Joy of the Gospel, Let Us Dream: The Path to a Better Future

Gauri Khan – 'My Life in Design'

Meena Iyer – Khullam Khulla, Faith & philosophy of Zoroastrianism

13.(2) Handball – 7 players

16.(2) **First-Generation Languages :**

These are low-level languages like machine language.

Second-Generation Languages:

These are low-level assembly languages used in kernels and hardware drives.

Third-Generation Languages :

These are high-level languages like C, C++, Java, Visual Basic, and JavaScript.

Fourth Generation Languages:

These are languages that consist of statements that are similar to statements in the human language. These are used mainly in database programming and scripting. Examples of these languages include Perl, Python, Ruby, SQL, and MatLab(MatrixLaboratory).

Fifth Generation Languages :

These are the programming languages that have visual tools to develop a program. Examples of fifth-generation languages include Mercury, OPS5, and Prolog. The first two generations are called low-level languages. The next three generations are called high-level languages.

17.(1) **Tyndall Effect** is a phenomenon in which the particles in a colloid scatter light beams that are directed towards them.

Pascal's law states that pressure applied anywhere in a confined incompressible fluid is transmitted

equally in all directions throughout the fluid.

Kepler's first law, all the planets revolve around the Sun in elliptical orbits with the Sun as one of the foci.

18.(4)

19.(4) **Mars** – One orbit around the sun – 687 days One spin on axis – 1 day, number of moons – 02.

Mercury – One orbit around sun – 88 days, One spin on axis – 59 days.

Earth – One orbit around the sun – 365 days. One spin on axis – 1 day Number of moons – 1.

Jupiter – One orbit around the sun – 11 years, 11 months (4333 days= 11.87 yrs.) about 12 years. One spin on axis – 9 hours, 56 minutes, number of moons – about 53.

20.(1)

21.(2)

22.(4) Prithvi-II is an indigenously developed Surface-to-Surface Missile Short-Range Ballistic Missile (SRBM), which has a range of around 350km and can carry a one tonne payload.

It was initially developed for the Indian Air Force as its primary user and was later inducted into the Indian Army as well.

While the missile was inducted into India's Strategic Forces Command for the first time in 2003, it was the first missile developed under the IGMDP.

23.(1) The Puranas authored by Maharshi Vyasa

Harisena was the famous poet of Sarnudragupta's Court. 2. He composed the epic 'Devichandraguptam'.

24.(1)

25.(3)

ANSWER KEY

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