ANSWERS WITH EXPLANATION (Exam Held on 03/12/2022) | 9AM

6. (2) In triangle ABC, QUANTITATIVE APTITUDE 1. (2) Ratio of Speed \rightarrow 1st Car 2nd Car 20 : 30 2 3 Ratio of Time-3 : 2 1 unit —4 hours 3 unit — 3×4=12 hours Total time = $1\frac{1}{2} + 2\frac{1}{2} = 4$ hours 2. (4) Discount-25% Successive discount $= 15\% + 10\% - \frac{15\% \times 10\%}{100}$ = 25% - 1.5% = 23.5% The difference between discount and successive discount 25% - 23.5% = 1.5% According to the question 1.5% = 25⇒ 15% = 250 ⇒ 100% = 1666.67 3. (2) $15\% = \frac{3}{20}$ 1000: 1300 20 : 23 200 : 299 Net Profit = 49.5%4. (2) According to the question 765)87501(114 765 1100 diff. $\begin{array}{c} \text{diff.} & \underline{765} \\ 474 & \underline{3351} \end{array}$ <u>3060</u> # 291 \Rightarrow 87501 + 474 = 87975 $\cos A$ sin A 5. (2) $\overline{1 + \tan A} - \overline{1 + \cot A}$ sin A $\cos A$ $= \frac{1 + \frac{\sin A}{\cos A}}{1 + \frac{\cos A}{\sin A}} = \frac{1 + \frac{\cos A}{\sin A}}{1 + \frac{\cos A}{\sin A}}$ $\cos^2 A - \sin^2 A$ $\cos A + \sin A$ (cosA+sinA)(cosA-sinA) (cosA+sinA) $(\cos A - \sin A)$

h $\frac{AB}{AC} = \frac{BD}{DC}$ $\Rightarrow \frac{10}{14} = \frac{BD}{DC} \Rightarrow \frac{BD}{DC} = \frac{5}{7}$ 7. (3) Ratio of number of people of C and E =144 : 280 = 18 : 35 8. (2) $\frac{P \times 4 \times 1}{100} + \frac{(5000 - P) \times 5 \times 1}{100} = 223$ \Rightarrow 4P + 25000 - 5P = 22300 ⇒ P = 25000 - 22300 ⇒ P = 2700 9. (3) Number of trucks sold by L and J 80 and 40 respectively. Required percentage $=\frac{80}{40}\times100=200\%$ $\frac{200}{2}:\frac{299}{2} \Rightarrow \underbrace{100:149.5}_{49.5} \quad 10. \text{ (2) The volume of a sphere} = \frac{4}{3}\pi r^{3}$ ATQ $\frac{4}{3}\pi r^{3}=24416.64$ $\Rightarrow \frac{4}{3} \times 3.14 \times r^3 = 24416.64$ \Rightarrow r³=5832 ⇒ r =18 Surface area = $4\pi r^2$ = 4×3.14×18×18= 4069.44cm² 11.(1) $\frac{1}{1 + \cos(90 - \theta)} + \frac{1}{1 - \cos(90 - \theta)}$ $=\frac{1}{1+\sin\theta}+\frac{1}{1-\sin\theta}$ $=\frac{1-\sin\theta+1+\sin\theta}{1-\sin^2\theta}$ $=\frac{2}{\cos^2\theta}=2\sec^2\theta$

12. (3) $\left(4a + \frac{5}{a} + 5\right) = 14$ $4a + \frac{5}{a} = 14-5=9$ Squaring both side $\left(4a+\frac{5}{a}\right)^2 = 9^2$ $\Rightarrow 16a^2 + \frac{25}{a^2} + 2 \times 4a \times \frac{5}{a} = 81$ $\Rightarrow 16a^2 + \frac{25}{a^2} = 81-40$ $\Rightarrow 16a^{2+}\frac{25}{a^{2}}=41$ 13. (1) Total students of section C 18 + 10 + 8 + 56 = 92Passed in Science but failed in mathematic = 8Percentage of students of section C passed in science but failed in mathematics $=\frac{8}{92} \times 100 = 8.7\%$ 14. (2) Ruchi-30 Khushi-40-Teja-60 Day 1 Day 2 Day3 Ruchi Ruchi+Khushi+Teja Ruchi Total work in $3^{4+3+2}_{\text{days}} = 17$ unit. 17 unit work is completed in 3 days 119 unit work is completed in $3 \times 7 = 21 \text{days}$ Remaining work = 120-119 = 1unit Remaining work will be done by Ruchi in $\frac{1}{4}$ day. Then the total work will be completed in 21 + $\frac{1}{4} = \frac{85}{4}$ days. 15. (3) 2r=3.5cmTotal surface area= $4\pi r^2$ $= 4 \times \frac{22}{7} \times \frac{3.5}{2} \times \frac{3.5}{2} = 38.5 \text{ cm}^2$ 16. (2) Let total money=32 unit Ram loses $\Rightarrow 12\frac{1}{2}\% = \frac{1}{9}$ Loses $\Rightarrow 32 \times \frac{1}{8} = 4$ unit Remaining 32-4=28 unit Spending $\Rightarrow 75\% = \frac{3}{4}$

Spending amount $\Rightarrow \frac{28 \times 3}{4}$ = 21 unit Remaining \Rightarrow 32-(4+21)=7 unit ATQ. $7 unit \rightarrow 630$ 32 unit $\rightarrow \frac{630}{7} \times 32 = 2880$ ∴ Initially Ram had ₹2880 17. (4) $x - \frac{1}{x} = 13$ squaring both side $\left(x-\frac{1}{x}\right)^2=13^2$ $\Rightarrow x^2 + \frac{1}{x^2} - 2 = 169$ $\Rightarrow x^2 + \frac{1}{x^2} = 171$ Squaring both side $\Rightarrow \left(x - \frac{1}{x}\right)^2 = 13^2$ $\Rightarrow x^2 + \frac{1}{x^2} - 2 = 169$ $\Rightarrow x^2 + \frac{1}{x^2} = 171$ squaring both side $\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^2 = (171)^2$ \Rightarrow x⁴ + $\frac{1}{x^4}$ +2=29241 $\Rightarrow x^4 + \frac{1}{x^4} = 29239$ 18. (4) The average no. of M_2 Ma chines= $\frac{14+8+8+12}{4} = \frac{42}{4} = 10.5$ S₁ and S₄ stores have more no. of M_2 machines. then the average¹number of M₂ machines per store. 19. (4) a:b=c:d $\Rightarrow \frac{b}{a} = \frac{d}{c}$ $\Rightarrow \frac{a}{b} = \frac{c}{d}$ $\Rightarrow \frac{b}{a} + 1 = \frac{d}{a} + 1$ $\Rightarrow \frac{a+b}{a} = \frac{d+c}{c}$ $\Rightarrow \frac{c}{a} = \frac{d+c}{a+b}$ $\Rightarrow \frac{a}{c} = \frac{a+b}{c+d}$ $\Rightarrow a: c = (a+b): (c+d)$

 $\begin{array}{rcl} 20. \ (2) & x^4 + x^2 + 25 \\ &= & x^4 + 10x^2 + 25 - 9x^2 \end{array}$ $+5)^{2}-(3x)^{2}$ $(x^2+5+3x)(x^2+5-3x)$ $(x^2+3x+5)(x^2-3x+5)$ 21. (4) 60 The area of a sector $=\pi r^2 \times \frac{\theta}{360}$ ATO. $66 = \frac{22}{7} \times r^2 \times \frac{60}{360}$ $\Rightarrow r^2 = 3 \times 7 \times 6$ \Rightarrow r= $3\sqrt{14}$ 22. (3) $\frac{12}{5}, \frac{14}{15}, \frac{16}{17}$ $= \frac{\text{HCF of (12,14,16)}}{\text{LCM of (5,15,17)}} =$ 55 23. (4) $\cos q + \sin q = \frac{31}{25}$ Squaring both side \Rightarrow cos²q+sin²q + 2sinq.cosq = 961 625 \Rightarrow 1+2sin q.cos q = $\frac{961}{625}$ $\Rightarrow 2 \sin q \cdot \cos q = \frac{961}{625} - 1$ $\Rightarrow -2\sin q \cdot \cos q = \frac{-336}{625}$ $\Rightarrow 1-2\sin q. \cos q = 1-\frac{336}{625}$ $\Rightarrow (\cos q - \sin q)^2 = \frac{289}{625}$ $\Rightarrow \cos q - \sin q = \frac{17}{25}$...(II) Now, adding (i) and (ii) $\cos q + \sin q = \frac{31}{25}$ $\cos q - \sin q = \frac{17}{25}$ $2\cos q = \frac{31+17}{25} = \frac{48}{25}$ $\Rightarrow \cos q = \frac{24}{25}$ $\Rightarrow \cos^2 q = \frac{576}{625}$

24. (1) Boys Girls 65 60 62 3 ٠ 2 ATQ, 5 unit \rightarrow 60 1 unit \rightarrow 12 $3 \text{ unit} \rightarrow 3 \times 12 = 36$ 25. (3) Here AB is a diameter of the circle with center O, two tangent PQ and RS draw at points A and B respectively. Radius will be perpendicular to these tangents. Thus, $OA \perp RS$ and $OB \perp PQ$ $\angle OAR = \angle OBP = \angle OBQ = 90^{\circ}$ Therefore, ∠OAR = ∠OBQ (Alternate interior angles) ∠OAS = ∠OBP (Alternate interior angles) Since, alternate interior angles are equal, lines PQ and RS will be parallel. 1. (2) 2. (4) 3. (2) 4. (2) 5. (2) 6. (2) 7. (3) 8. (2) 9. (3) 10.(2) 11.(1) 12.(3) 13.(1) 14.(2) 15.(3) 16.(2) 17.(4) 18.(4) 19.(4) 20.(2) 21.(4) 22.(3) 23.(4) 24.(1) 25.(3) **GENERAL AWARENESS** (2) There are three major types 1. of rocks: Igneous rocks, Sedimentary rocks and Metamorphic rocks. Study of Rocks - Petrology Study of Fossils - Palentology 2. (1)3. (1) Motto of 2022, Beijing Olympic was 'Together For a Shared Future.' In 2022, April Khan was the India's flag bearer. 4. (2)(3) NNP = GNP - Depreciation 5. 6. (2) $Na_{2}B_{4}O_{7}$. $WH_{2}O \rightarrow Borax$ (Sodium tetraborate decahydrate) It is ionic compound the best used for Borax is as a cleaner.

- (2) OYO (On Your Own) was 15. (2) One 7. founded in 2012 by Ritesh Agarwal. Its Headquarters is in Gurugram, Haryana.
- **National Parks** 8. (2) **State** Bihar Valmiki Tripura Clouded and Raj bari Haryana Sultanpur and Kalswar Jharkhand Betla
- 9. (4) The playing Court is 40 m long and 20 m wide. The goals are surrounded by the crease, of radius 6 m. A standard match has two 30 min. halves, 25 min at ages 12 to 15 and 20 min at ages 8 to 11. Total number of players is 7.
- 10. (4)
- 11. (2) D2D (Distributor-to-Distributor) is NOT a classification of E-Commerce. It is a radio technology that enables devices to communicate directly with each other, that is without routing the data paths through a network infrastructure.
- 12. (1) A.K. Anil Kumar-Vice President of International Astronautical Federation. Prashant Kumar - M.D. and C.E.O of YES Bank Sunil Barthwal -Secretary of department of Commerce. Lok Sabha seats in Meghalaya - 2 Rajya Sabha seats in Meghalaya - 1
- 13. (2) There are 2 main types of cell division.
 - (i) Mitosis one cell divides to produce two new cells that are genetically identical to itself.
 - (ii) Meiosis-sexually reproducing organisms that reduces the gametes.
- 14. (1) The first session of INC was proposed at Poona, the venue was shifted, to Bombay, (due to out break of plague) at 'Gokuldas Tejpal Sanskrit Pathsala'. 72 delegates participated in it. The President of this session (1885) was W.C. Bannerjee.

- Ampere represents one coulomb of electrical charge (6.24 \times 10¹⁸ charge carriers) moving past a specific point in one second.
- 16. (3) Lithosphere (Land) 10 kms to 200 kms Hydrosphere (Water) - 10 kms to 20 kms Biosphere (living things) about 20 km Atmosphere (Air) - 480 kms
- 17. (1) Pandit Ravishankar Prasad -Sitar Pandit Hariprasad Chaurasia -Flute Pandit Jasraj - Vocalist Pandit Shiv Kumar Sharma -Awards - Sangeet Natak Akadami (1986), Padma Shri in 1991 and Padma Vibhushan in 2001.
- 18. (3) MgCO₂-Magnesium Carbonate MgO, - Magnesium Peroxide $Mg(\tilde{O}H)_{2}$ - Magnesium Hydroxide
- 19. (2) Article 22 Protection against 1 arrest and detention in 2 certain cases. Article 23 - Prohibition of traffic in human beings and forced labour. Article 25 - Freedom of $4 < 6^{-2}$ conscience and free profession, practice and propagation of religion
- 20. (3) Rayon is not a natural fibre. It is man-made fibre prepared from a natural raw material called cellulose by chemical treatment.
- 21. (3) Article 52- The president of India. Article 54 - Election of the President (elected member of both houses and elected member of legislative assemblies. Article 55 - Manner of election of President Article 56 - Term of office of President (5 years)
- number of Chromosomes in 22. (2) Pongal is a harvest festival celebrated in Tamil Nadu. Pongal has four festive day. Bhogi Pongal, Thai Pongal, Mattu Pongal and Kaanum Pongal. Puthandu celebrated on the first day of Chaitra month. Ugadi is celebrated as the New Year in Andhra Pradesh, Karnatka and Telangana. Onam is the harvest festival of Kerala.

- current 23. (3) List of other item seized by Cholas Ganesha status and several statue of Durga, a Kali statue from the Palas of Bengal, a nandi statue from the eastern Chalukyas, an image of Bhairava from Kalings of Odissa. Rajendra I (1014 AD - 1044 AD) defeated Pala ruler, Malvipala in 1022 AD and assumed the title of Gangaikonda.
 - 24. (3)
 - 25. (1) Limestone is found in associated rock composed of calcium carbonates & Magnesium Carbonates. It is found in sedimentary rock.

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

🕨 GENERAL INTELLIGENCE & REASONING 🛽

1. (2) From figure i and iii we get,

$$3-5$$

So, $1\leftrightarrow 4$

 $6 \leftrightarrow 3$

 $2 \leftrightarrow 5$

So, 4 is the number on the face opposite to the face having '1'.

2. (1) ECONOMIST[®] TSIMONOJ3 3. (3) 1 + 4 - 5 + 4 - 9 + 4 - 133+47+411+415 MOBILE 4. (2) +3 +3 +3 +3 +3 +3 PŘĚĽŎĤ and SILENT +3 +3 +3 +3 +3 +3 V L O H Q W Similarly, PAINTING ŚDLQWLQJ (1) $(36 - 18) \times 5 = 90$ 5. $(15 - 8) \times 5 = 35$ Similarly,

 $(14 - 5) \times 5 = 45$

6. (4) By hit and trial method $A \div B + C$ A⁺ Ė Ă is the maternal grand father of C Ŗ \mathbb{P} and, 7. (2) ÌĠ −ĭ −1 -1-1 ΜР D Similarly, ÓĹ Ż 8. (2) $9-5 \times \overset{-1-1}{4} + 6 \div \overset{-1-1}{5} = -30$ interchanging 5 and 9 5 – 9 × 4 + 6 ÷ 3 $5 - 36 + 2 = -29 \neq -30$ (4) the right option is 4 10. (3) $(50 + 63) \times 4 = 452$ (35 + 30) × 4 = 260 $(50 + 15) \times 4 = 260$ C G B F Yodd--1 +311. (1) $\begin{array}{cccc} R & K & U & K & D & N \\ +3 & +3 & +3 \end{array}$ 12. (4) $\frac{12 \times 7}{2} = \frac{84}{2} = 42$ $\frac{13 \times 8}{2} = \frac{104}{2} = 52$ Similarly, $\frac{9 \times 4}{2} = \frac{36}{2} = 18$ WINDOW ICKE1 +1 -3 +1 +1 -3 +1 and +1 -3 +1 +1 -3 +1X F O E L X U F D L B U 13. (1) ŮFĎĹBŮ REGION Similarly, +1 - 3 + 1 + 1 - 3 + 1ŠĚHJLŎ 14. (4) $D^{+3} G^{+3} J^{+3} M^{+3} P$ A + 4 E + 4 I + 4 M + 4 Q $J \xrightarrow{+2} L \xrightarrow{+2} N \xrightarrow{+2} P \xrightarrow{+2} R$ 15. (1) $14 \times 6 \div 12 + 15 - 9 = 203$ interchanging 15, 6 and +, ÷ then, $14 \times 15 + 12 \div 6 - 9 = 203$ \Rightarrow 210 + 2 - 9 = 203 \Rightarrow 210 - 7 = 203 \Rightarrow 203 = 203 (Fan) 16. (2) (Bulbs) (Vase) Switch/ 17.(2) κ

(WOFOR) 18. (4) 19. (3) $B \rightarrow 2$ and $C \rightarrow 3$ $R \rightarrow 18$ $0 \rightarrow 4$ $E \rightarrow 2$ $L \rightarrow 12$ $0 \rightarrow 4$ $A \rightarrow 1$ $K \rightarrow 11$ $U \rightarrow 5$ $R \rightarrow 18$ Similarly, $T \rightarrow 20$ $R \rightarrow 18$ $I \rightarrow 3$ $N \rightarrow 14$ $G \rightarrow 7$ 0 U Ε \downarrow_1 $\frac{1}{2}$ **↓** 3 4 5 20. (3) 20 * 2 * 50 * 5 * 115 By using $+, \times, -, =$ then, $20 + 2 \times 50 - 5 = 115$ $\Rightarrow 20 + 100 - 5 = 115$ $\Rightarrow 115 = 115$ 21. (1) 2. Expedition 4. Expel 5. Expenditure 1. Expensive 3. Experience 22. (2) R+5,W+5,B+5,G+5,L <u>M-6, G-6, A-6, U-6, O</u> T-7, A-7, H-7, O-7, V S-8,K-8,C-8,U-8,M

23. (2)

24. (1) 1 22 44 67 91 116+21 +22 +23 +24 +25 25. (4) $7 \times 10 + 1 = 71$ $11 \times 10 + 1 = 111$ $8 \times 10 + 1 = 81$ $12 \times 10 + 1 = 121 - \text{odd}$ 1. (2) 2. (1) 3. (3) 4. (2) 5. (1)6. (4) 7. (2) 8. (2) 9. (4) 10.(3) 11.(1) 12.(4) 13.(1) 14.(4) 15.(1) 16.(2) 17.(2) 18.(4) 19.(3) 20.(3) 21.(1) 22.(2) 23.(2) 24.(1) 25.(4) ENGLISH LANGUAGE AND COMPREHENSION (3. (3) "could swim across" is correct phrase. It shows past ability. 4. (2) replace "of side" with "inside" or "in". 10 (3) "the year before last" is correct expression. It means previous to the last year. 15. (1) "have been working" is the correct structure for present perfect continuous tense. 17. (2) invisible to the naked eye is correct phrase. Replace "from" with "to". 1. (4) 2. (1) 3. (3) 4. (2) 5. (4) 6. (3) 7. (4) 8. (4) 9. (1) 10.(3) 11.(1) 12.(4) 13.(2) 14.(3) 15.(1)16.(3) 17.(2) 18.(4) 19.(1) 20.(1)

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

Words	Meaning in English	Meaning in Hindi		
Ambitious	desirous, passionate.	अभिलाषी,महत्वकांछी		
	Ant. laziness.			
Equaliser	that makes equal, a balancer, a device	समकारी, जो बराबर		
	that balances various quantities.	करता हो, तराजू		
Fatal	deadly	घातक		
Pacifier	one who calms someone/someone.	शांति स्थापक		
Perils	a great danger	गंभीर खतरा		
	Syn. hazard , risk, threat.			
Spick and spa	साफ-सुथरा			
Solicitor	advocate, barrister.	वकील		
Stagnant	inactive , motionless, still.	गतिहीन, रोका हुआ		