ANSWERS WITH EXPLANATION (Exam Held on 08/12/2022) | 05:15PM

QUANTITATIVE APTITUDE

 $\sin^2 63^\circ + \sin^2 27^\circ$ 1. (3) $\cos^2 17^\circ + \cos^2 73^\circ$ $[\cos (90 - \theta) = \sin \theta]$ $\sin^2(90^\circ - 27^\circ) + \sin^2 27^\circ$ $\cos^{2}(90-23^{\circ})+\cos^{2}73^{\circ}$ $=\frac{\cos^2 27^\circ + \sin^2 27^\circ}{\sin^2 73^\circ + \cos^2 73^\circ} \Rightarrow \frac{1}{1} = 1$ 2. (4) a : b = 4:5, b:c = 3:10,a:c a:b=4:5b:c = 3:10a : c = 12 : 50 = 6 : 25 3. (4) Right Wrong 89 98 9 +average increase $\rightarrow 0.25$ Let total students $\rightarrow x$ $0.25 = \frac{9}{x}$ x = 36 4. (4) ATQ 15% = 600 100% = Rs. 4000 5. (2) Average of company = 650 + 730 + 520 + 680 + 740 + 490 + 660 + 810 $=\frac{5280}{8}$ \Rightarrow 660 ATQ = 4:36. (4) Police Thief 8:30 8:30 x km/h 60 km/h Distance covered by thief in 15 minutes = $60 \times \frac{15}{60}$ = 15 km The police arrest the thief at = 9 : 00 am Let, speed of police = x km/h $(x-60) \times \frac{1}{2} = 15$ x - 60 = 30x = 90 km/h7. (4) The ratio of number of officers working in Q to the numbers of officers working in R.

Q : R = 250 : 350 $= 5 \cdot 7$ 8. (3) We know that $k + \frac{1}{k} = x$, then, $k^2 + \frac{1}{k^2} = x^2 - 2$ How, $k + \frac{1}{k} = 3$ $k^{2} + \frac{1}{k^{2}} = 9 - 2$ $k^2 + \frac{1}{1r^2} = 7$ 9. (4) a+b+c = 9 ab+bc+ca = 23a+b+c = 9Squaring both side $a^{2}+b^{2}+c^{2}+2(ab+bc+ca) = 81$ $a^2+b^2+c^2 = 81 - 46$ $a^2+b^2+c^2 = 35$ 10. (3) $\tan (4\infty - 50^\circ) = \cot (50^\circ - \infty)$ $\tan A = \cot B$ $A + B = 90^{\circ}$ $4\infty - 50 + 50 - \infty = 90^{\circ}$ 3∝ = 90 $\infty = 30^{\circ}$ 11.(3)Μ ⁷110° corresponding angle C $= 110^{\circ}$ a + c = 180 a = 70° 40+a = b (exterior angle) $b = 110^{\circ}$ 12. (3) \6 cm R Area of sector = $\pi r^2 \frac{\theta}{360}$ $=\pi \times \frac{36 \times 40}{360} \Rightarrow 4\pi \,\mathrm{cm}^2$ 13. (3) А В 17 13 . 13**→**Efficiency 2Ž1

Start - A В А 17 13 $2 \, day = 30$ 14 day = 210Remaining work = 221 -210 = 11 $\frac{11}{17}$ day = 11 $14\frac{11}{17}$ day = 221 14. (3) Capital Nihit Amit Patel 700 300 400 Time 12m 7m 7m : 2100: Profit 8400 2800 84 : 21 : 28 12 3 : 4 19 units = 627 1 unit = 33 Patel, 4 units = 13215. (2) $r_1 = 17$ $r_2 = 7$ 17cm А BP = AO = 24 cm $BP^2 = PC^2 + BC^2$ $(24)^2 = 10^2 + BC^2$ $576-100 = BC^2$ BC = $\sqrt{476}$ BC = $\sqrt{4 \times 119}$ BC = $2\sqrt{119}$ cm Alternatively:common tangent = $2\sqrt{r_1r_2}$ $=2\sqrt{7\times 17} = 2\sqrt{119} \text{ cm}$ 16. (1) PQ = 6cm, QR = 8cm, QA = 3cm, AB = 13

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In $\triangle PAB$ and $\triangle PQR$ $\angle A = \angle Q, \angle B = \angle R$ $\Delta PAB \sim \Delta PQR$ $\frac{PA}{AB} = \frac{PQ}{QR} \implies \frac{3}{x} = \frac{6}{8}, x = 4$ 17.(1) The ratio of total central angle formed by sector C, D and F to the central angle formed by sector A, C and Η. (12+2+6) : (19+14+10)20 43 18. (2) $x + \frac{1}{r} = 2\sqrt{5}$ $x - \frac{1}{x} = \sqrt{20 - 4}$ $x-\frac{1}{x}=4$ Cubing both side $x^3 - \frac{1}{r^3} = 64 + 12$ $x^3 - \frac{1}{r^3} = 76$ 19. (3) 7 digit number 678P37q is divisible by 75. 25×3 $=\frac{7q}{25}=q=5$ divided by 3 6+7+8+P+3+7+5 3 $\Rightarrow \frac{36+P}{3}$ P = 3, (6, 9)P = 320. (3) $\tan A \tan B + \frac{\cos x}{\cos A \cos B}$ sinA sinB cos x $\overline{\cos A \cos B}^+ \overline{\cos A \cos B}$ $\cos x = \cos A \cos B - \sin A$ sinB $\cos x = \cos (A+B)$ x = A+B21. (1) ATQ 20 ČP = 18 SP CP : SP = 9 : 1022. (3) Volume of cuboid = Volume 11. (3) 12. (3) 13. (3) 14. (3) 15. (2) of cube $l \times b \times h = a^3$ $12 \times 18 \times 27 = a^3$ 343

a = $\sqrt[3]{3 \times 4 \times 9 \times 2 \times 27}$ $a = 3 \times 2 \times 3$ a = 18 cm Total surface area of a cube = 6a² $= 6 \times 18 \times 18$ Surface area of cuboid = 2(lb + bh + hl) $= 2(12 \times 18 + 18 + 27 + 27 \times 12)$ = 2(216+486+324) $= 2 \times 1026 = 2052$ ATQ, 2052:324 $171 : 27 \times 6$ 19 : 18 23. (3) Cash payment $= 2800 \times \frac{55}{100} \times \frac{75}{100}$ $= 28 \times 55 \times \frac{3}{4} = 21 \times 55$ =₹1155 24. (1) xy^3 , $x^2y^2 \times x^3y^4$ HCF xy - Factorization. HCF = xy $xy^3 = x \times y \times y \times y$ $x^2y = x \times x \times y$ $\mathbf{x}^{3}\mathbf{y}^{4} = \mathbf{x} \times \mathbf{x} \times \mathbf{x} \times \mathbf{y} \times \mathbf{y} \times \mathbf{y} \times \mathbf{y}$ $LCM = x^3 y^4$ 25. (2) ATQ, \rightarrow 1991 – 1992 Diff. between passed and fail students = 150 - 100 = 50 \rightarrow 1992 – 1993 Diff. between passed and fail students = 200-100 = 100 \rightarrow 1993 – 1994 Diff. between passed and fail students = 300 - 50 = 250 \rightarrow 1994 – 1995 Diff. between passed and fail students = 250-100 = 150 maximum passing year 8. (1) Ravi Sankar, Bismillah 1993-1994. Profit % = $\frac{1}{9} \times 100 = 11 \frac{1}{9}$ % 1. (3) 2. (4) 3. (4) 4. (4) 5. (2) 6. (4) 7. (4) 8. (3) 9. (4) 10.(3) 16.(1) 17.(1) 18.(2) 19.(3) 20.(3)

GENERAL AWARENESS

- 1. (3) In Harappan Civilization Gold was obtained from the Himalavan river bends and Silver from Mesopotamia. Copper was brought from Khetri (Rajasthan)
- 2. (4) Capital expenditure of government of India is estimated at 10.68 lakh crore in 2022-23, which will be about 4.1% of GDP.
- 3. (3) L-Route server has been installed by Rajasthan government in association with the Internet Corporation for Assigned Names and Numbers (ICANN). If there is a problem in internet connectivity due to any technical glitch or natural calamity in India or whole Asia, it will run without any interruption in Rajasthan.
- 4. (1) Article 30 Rights of minorities to establish and administer educational institutions.
- 5. (4) Humid subtropical climate - A zone characterized by hot and humid summers and cool winters.

Highland climate is the weather for elevation above the tree line where trees fail to grow due to cold Humid continental climate exhibits large seasonal temperature contrasts with hot summers and cold winters.

- 6. (4)
- 7. (1) Atomic number of Potassium is 19. Electronic configuration - $1s^2 2s^2 2p^6$ $3s^2 3p^6 4s^1$
 - Khan and Lata Mangeshkar were awarded Bharat Ratan in 1909, 2001 and 2001 respectively.

Zakir Hussain got Padma Shri in 1988 and Padma Bhushan in 2002.

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

- 9. (4)
- 10. (4) Quwwat-al-Islam Mosque was constructed by Qutb-ud-din Aibak. It is situated northwest to the Qutab Minar.
- 11. (1) The Judiciary in India has a pyramidal structure with Supreme Court at top, High Courts below them and District Courts and Subordinate Courts at the lowest level. The lower courts function under the direct superintendence of the higher courts.
- 12. (1) Ajay Bhushan Pandey -CEO of UIAI Sandeep Sanyal - Member

of P.M Economic Advisory Council. Ashwin Yardi - CEO of

22. (4) Capgemini Technology Services India.

- 13. (1) Agra is situated on the bank of Yamuna. Kanpur is situated on the bank of Ganga. Lucknow is situated on the bank of Gomti.
- 14. (3) Women's Indoor Hockey 24. (4) World Cup was first held in 2003. 2018 - Berlin, Germany 2023 = Pretoria, South Africa
- 15. (3) Pepsin is a stomach enzyme that serves to digest proteins found in ingested food. Protease modifies the

properties of food proteins. Amylase helps in digesting carbohydrates.

16. (3) Prerana Deshpande Kathak Geeta Kapoor Choreographer R MuthuKannammal Sadir Dancer Dr. Sohini Ray - Manipuri dancer

17.(2)

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18. (4) The Taekwondo uniform is called 'Daedo'. The Judokas wrestle on a mat called 'tatami'.

3.(4)

- 19. (4) Overall literacy rate according to 2011 census is 4.(1)74.04%, (82.14% for males and 65.46% for females.) Kerla (94%) and Tamil Nadu (80.09%) how the highest literacy rate. Dadra and Nagar Haveli (77.24%) the lowest in UTS. Lakshadweep (91.85%) highest rate in UTS. 5.(3) 20. (2)
- 21. (1) Sanjiv Kapoor CEO of to be revived Jet Airways Ashwani Bhatia - Whole time member of SEBL. Mahesh Verma 6.(2) Chairperson of NABH
- 23. (2) Milad un-nabi is an annual celebration to commemorate the birth anniversary of Prophet 7.(2) Muhammad. 8.(3) Shab-e-Barat is celebrated 9.(3) on the 1st night of the month of Shalban (8th month of Islamic calendar.)

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

🕨 GENERAL INTELLIGENCE & REASONING 🐗 $\frac{40}{4} \times 40 = 400$ 1.(2) $\frac{30}{7} \times 30 = \frac{900}{7}$ $\frac{100}{10} \times 100 = 1000$ $\frac{50}{5} \times 50 = 500$ $108 \div 2*10 + 70 - 10 = 480$ 2.(1) interchanging + and - $\Rightarrow 108 \div 2 * 10 - 70 + 10 = 480$ $\Rightarrow 54*10-60 = 480$ ⇒ 540–60 = 480 ⇒480 = 480

N H @ V @ U # W & E ^ X # Z & $R \wedge S$ $H^- V^- U^- \Leftrightarrow W^+ - E$ $X^{-} \Leftrightarrow Z^{+} - R^{-}$ (I) Z is the maternal grandfather of S is not correct. P-Q+R $P^{+} - Q^{+}$ R Shows that P is the paternal uncle of R. $189 \div 2 \times 30 + 18 - 5 = 159$ interchanging 18, 30 and ÷, - $189 - 2 \times 18 + 30 \div 5 = 159$ \Rightarrow 189–36+6 = 159 \Rightarrow 189–30 = 159 $\Rightarrow 159 = 159$

- L А T ↓+1 ↓+2 $\downarrow +1$ ↓+3 Μ С G L ↓+1 $\downarrow +2$ ↓+1 ↓+3 Е Ν Η 0 ↓+1 $\downarrow +2$ ↓+1 ↓+3 G Ι R 0 $\downarrow +1$ $\downarrow +2$ $\downarrow +1$ ↓+3 Ρ J U T
- 11.(2) Birds live in a nest. Similarly, Rabbits live in a burrow.
- 12.(1) $(2)^2 = 4$, $(3)^2 = 9$, $(4)^2 = 16$ $(5)^2 = 25, (6)^2 = 36, (7)^2 = 49$ $(7)^2 = 49, (8)^2 = 64, (9)^2 = 81$ 13.(2) From fig (II) and (IV)
 - $5 \begin{pmatrix} 4-2\\ 1-3 \end{pmatrix}$





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Words Meaning in English Meaning in Hindi					
	⇒ 3+14-4 = 13			21.(1)	22.(4) 23.(2) 24.(2) 25.(2)
	interchanging 7 and 3 \Rightarrow 3+7×2-4÷1 = 13	24.(4)	-20 -20 -20 -20 -28	16.(3)	17.(4) 18.(4) 19.(1) 20.(2)
18.(4)	$7+3\times2-4\div1 = 13$			11.(1)	12.(1) 13.(3) 14.(4) 15.(1)
	Q W	23.(2)	98, 70, 42, 14, -14 , -42	6. (2)	7. (4) 8. (4) 9. (2) 10.(1)
			$68 \times \frac{1}{2} + 26 \times \frac{1}{2} = 34 + 39 = 73$	1. (1)	2. (1) 3. (4) 4. (2) 5. (3)
	\downarrow +3		1 3		does not take 'ing' form.
	T		$46 \times - +18 \times - = 23 + 27 = 50$		means - owned by. Belong
	E L O Q U E N			18. (4)	"belongs to" is correct. It
	S R Z H U Similarly	22.(1)	$\frac{1}{2}$ +10× $\frac{1}{2}$ = 26+15 = 41		years.((हजार वर्ष)
	\downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3	00 (1)	52 3		Meaning -A period of time
	P O W E R		1. Telescope		speit.
	U X Q J V and		5. Telepath 2. Telephone	14. (4)	"Millennium" is incorrectly
	\downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3 \downarrow +3		3. Telegram		bankrupt or insolvent.
17.(1)	L U N G S	21.(1)	4. Telecast		substitute. It means- be
	(8+2)×3 = 10×3 = 30 (11+6)×3 = 17×3 = 51		$\begin{array}{cccc} & & & \\ & & $	6. (2)	"go bankrupt" is correct
16.(4)	$(12+5)\times 3 = 17\times 3 = 51$		V Q O J		"a".
	+1		\downarrow +7 \downarrow +5 \downarrow +9 \downarrow +11	2. (1)	"horrible" will take article
	W Q P N		$\begin{array}{ccccccc} \downarrow + \gamma & \downarrow + 5 & \downarrow + 9 & \downarrow + 11 \\ O & L & F & Y \end{array}$	ENGLIS	SH LANGUAGE AND COMPREHENSION (
			H G W N	21.(1)	22.(1) 23.(2) 24.(4) 25.(1)
	+1	20.(3)	$\begin{array}{c} A B N C \\ \downarrow +7 \downarrow +5 \downarrow +9 \downarrow +11 \end{array}$	11.(2) 16.(4)	12.(1) $13.(2)$ $14.(2)$ $15.(1)17.(1)$ $18.(4)$ $19.(4)$ $20.(3)$
	SMLG;	(2)	M Á Ľ C	6. (2)	7. (2) 8. (3) 9. (3) 10.(3)
				1. (2)	2. (1) 3. (4) 4. (1) 5. (3)
	-6 -12		C A L M	K K	
			E I N M	A P	PRECIATION
			M I N E	N O	I T A R A C C E L E
	-6 +2		Ē Ă Š B		
13.(1)	<u>▲</u> , '	19.(4)			Ý ŘŤĚ M O T R I G O N
15(1)	OIGE.		$\Rightarrow 13 = 13$		
	-6 +2		\Rightarrow 14-1 = 13	25.(1)	T R I G O N O M E T R Y

Words	Meaning in English	Meaning in Hindi
A Stone's throw	At a short distance.	बिल्कुल नजदीक
away	Ex:- The tiger was sitting just a stone's throw away from us.	
At one's fingertip	instantly available.	शीघ्र उपलब्ध
At arm's length	to avoid being very close to or friendly with someone or something. <i>Ex: He has kept his old mischievous friends at</i> <i>arm's length.</i>	दूरी बनाके रखना
From pillar to post	forced to move form one place to another. (often due to rejection or failure)	इधर-उधर भटकना
Waver	To vacillate irresolutely between choices, fluctuate in opinion, allegiance, or direction.	कॉॅंपना, डगमगाना

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