QUANTITATIVE APTITUDE

1. (4) 98   175   210
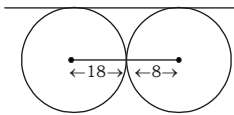
35 on taking the minimum difference.

Factor – 35 $\begin{cases} 5 \\ 7 \to HCF \end{cases}$

∴ The HCF of three numbers 98, 175, and 210 will be 7.

2. (1) R_1 = 18

R_2 = 8

d = 18+8 = 26

Length of direct common tangent = $\sqrt{d^2-(R_1 \sim R_2)^2}$

= $\sqrt{26^2 - 10^2}$ = 24 cm

3. (4) Number of tractor T_5 sold by both companies is
= 110+150 = 260

Number of tractor T_2 Sold by both companies is = 40+50 = 90

Required percentage

= $\frac{170}{90} \times 100$

= $\frac{1700}{9}$ = 188.88%

4. (1) CP = 1500

MP = $1500 \times \frac{140}{100}$ = 2100

Let discount = x%

ATQ,

$2100 \times \frac{100-x}{100}$ = 1575

2100 – 21x = 1575

21x = 525

x = 25%

5. (2) Two triangles are said to be congruent if 2 angles and the included side of one triangle are equal to 2 angles and the included side of the other triangle.

6. (2) 33 = 11×3

Divisibility rule for 11 → The difference between the sum of the digits in the odd places an the sum of digits in the even places must be zero or multiple of 11.

Divisibility rule for 3 → Sum of digits must be divisible by 3.

52A6B7C/11

5+A+B+C = 2+6+7

5+A+B+C = 15

(A = 3, B = 5, C = 2)

$\frac{20+A+B+C}{3}$ = A + B + C
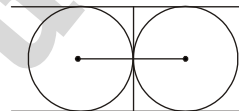
= 10

(A = 3, B = 5, C = 2)

Now,

2A + 3B + C

2×3 + 3×5 + 2 = 23

The number of common tangent is = 3

7. (2) Solution here.

8. (2) tan3θ.tan7θ = 1

tan7θ = cot3θ

tanA = cotB

A + B = 90°

3θ+7θ = 90 – 30

θ = 9

Now, cot 15θ = cot 135

= cot (90+45)

= –tan45° = –1

9. (3) The ratio of Number of scissor sold By R and S.

45 : 25

9 : 5

10. (4) Let CP = x

ATQ, $\frac{85x}{100} = \frac{125x}{100} - 120$

$\frac{85x}{100} = \frac{125x - 12000}{100}$

85x = 125x–12000

40x = 12000

x = 300

11. (1) Average speed

= $\frac{\text{Total distance}}{\text{Total time}}$

= $\frac{12 + 2 + \frac{18}{5} + 12}{2 + 1 + 1.5 + 1 + 3}$ = 3.48

12. (4) Area of an equilateral

triangle = $\frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times (16)^2$

⇒ $64\sqrt{3}$ cm²

13. (4) Let 3rd term = x

51 : 68 :: x : 108

68×x = 51×108

$x = \frac{51 \times 108}{68}$ = 81

14. (3) We know that

secθ + tanθ = K

secθ – tanθ = $\frac{1}{k}$

Now, secθ + tanθ = $\sqrt{5}$

secθ – tanθ = $\frac{1}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

15. (2) The highest production of

company is F = $\frac{22}{110} \times 100$

= 20%

E = $\frac{20}{30} \times 100$ = 66.6%

(Highest production)

D = $\frac{30}{60} \times 100$ = 50%

B = $\frac{40}{160} \times 100$ = 25%

16. (2) P = 15600

R% = 10%

Interest in 2 years

$SI = \dfrac{15600 \times 2 \times 10}{100}$

SI = 3120

Principal after 2nd year

= 15600 + 3120 = 18720

$SI = \dfrac{18720 \times 10 \times 2}{100} = 3744$

The interest at the end of 4 years 3744 + 3120 = 6864

17. (4) We know that,

p + q + r = 0

$p^3 + q^3 + r^3 = 3pqr$

p = 8.15

q = 9.06

r = –17.21

p+q+r = 8.15+9.06–17.21 = 0

ATQ, $p^3+q^3+r^3 - 3pqr$

3pqr – 3pqr = 0

18. (2) Saving money of Pankaj =

$720 \times \dfrac{35}{100} = 252$

19. (1) $\underset{6\,\text{hrs.}}{\overset{A}{\longrightarrow}}\ \underset{10\,\text{hrs.}}{\overset{B}{\longleftarrow}}$

Let, total distance = 60 km

Speed of A $= \dfrac{60}{6} = 10$ km/h

Speed of B $= \dfrac{60}{10} = 6$ km/h

At time (both meet) $= \dfrac{60}{16} =$

$3\dfrac{3}{4}$ hrs.

= 3 hrs. 45 min.

 = 8 : 00 AM + 3 hrs. + 45 min.

 = 11 : 45 AM

20. (3) 40% → $\dfrac{2}{5}$,   A   :   B

Efficiency→ 7   5

ATQ,

5×36 = 12×x

x = 15 days

21. (2) Putting   1.6 = a

0.6 = b

$= \dfrac{1.6 \times 1.6 \times 1.6 - 0.6 \times 0.6 \times 0.6}{1.6 \times 1.6 + 1.6 \times 0.6 + 0.6 \times 0.6}$

$= \dfrac{a \times a \times a - b \times b \times b}{a \times a + a \times b + b \times b} = \dfrac{a^3 - b^3}{a^2 + ab + b^2}$

$= \dfrac{(a-b)(a^2 + ab + b^2)}{(a^2 + ab + b^2)} = a - b$

= 1.6 – 0.6 = 1

22. (4) Area of a cubical room = a^2

the diagonal of cube = $a\sqrt{3}$

ATQ,

a^2 = 64

a = 8

digonal/longest rod = $8\sqrt{3}$

23. (2) 2sinθ + 2sin^{2}θ = 2

sinθ + sin^{2}θ = 1

sinθ + 1 – sin^{2}θ = 1

cos^{2}θ = sinθ

Now,

2cos^{4}θ + 2cos^{2}θ

2sin^{2}θ + 2sinθ = 2

24. (2) $x^4 + \dfrac{16}{x^4} = 15617$,

$(x^2)^2 + \left(\dfrac{4}{x^2}\right)^2 + 8 = 15617 + 8$

$\left(x^2 + \dfrac{4}{x^2}\right)^2 = 15625$

$x^2 + \dfrac{4}{x^2} = 125$

$(x)^2 + \left(\dfrac{2}{x}\right)^2 + 4 = 125 + 4$

$\left(x + \dfrac{2}{x}\right)^2 = 129$

$x + \dfrac{2}{x} = \sqrt{129}$

25. (4) The total marks obtained in Q, S and U

= 13%+11%+20% = 44%

100% → 700

1%   → 7

44%   → 308

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

GENERAL AWARENESS

1. (2) Area wise largest States - Rajasthan, Madhya Pradesh, Maharashtra, Uttar Pradesh ,Gujarat.

Population wise largest - Uttar Pradesh, Maharashtra, Bihar, West Bengal, Madhya Pradesh.

2. (1) Padmaja Reddy, Yamini Reddy, Deepa Sashindran abd Shantala Shivalingappa are Kuchipudi dancers.

3. (2)

4. (4)

5. (2) The Indian Institute of Soil Science was established on 16 April 1988 under the Indian Council of Agricultural Research (ICAR).

Its Motto is Agrisearch with a Human Touch.

Its Director is Dr. A. K. Patra.

Minister of Agriculture and Farmers' Welfare is Narendra Singh Tomar.

6. (3) Satyashodhak Samaj (Truth-seekers' Society) was a social reform society founded by Jyotiba Phule in Pune, Maharashtra, on 24 September 1873. It espoused a mission to enhance education, social rights and political access for underprivileged groups, focused especially on women, peasants, and Dalits, in Maharashtra.

7. (4) Saving account is a bank account at a retail bank.

A Reinvestment deposit plan basically allow you to reinvest the interest earned by you on deposits.

A fixed deposit is a financial instrument provided by banks or NBFCS which provides investors a higher rate of interest than a regular saving account, until the given maturity date.

8. (4) Magnesium peroxide - MgO_2

Magnesium hydroxide - $Mg(OH)_2$

Magnesium carbonate - $MgCO_3$

Magnesium oxide - MgO

9. (3)

10. (2) Bade Ghulam Ali Khan was also known as Sabrang. He was born on 2nd April 1902 and died on 23rd April 1968. He is a Hindustani Classical vocalist.

Awards

Sangeet Natak Akademi Award (1962)

Sangeet Natak Akademi fellow (1967)

Padma Bhushan Award (1962)

11. (2) Swachh Bharat Mission (SBM), initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management. It is a restructured version of the Nirmal Bharat Abhiyan launched in 2009 that failed to achieve its intended targets.

Phase 1 of the Swachh Bharat Mission lasted till October 2019.

Phase 2 is being implemented between 2020–21 and 2024–25 to help cement the work of Phase 1.

Slogan - One step towards cleanliness.

12. (2) A run scored by a batting side arising from the ball striking any part of the batsman's body (other than the hand) without touching the bat.

13. (3) Ziyauddin Barani(1285-1358) was best known for composing the Tarikh-i-Firoz-Shahi (Tarikh-i-firoz-shahi) and Fatwa-i-Jahan dari.

14. (2) Article 243U - Every panchayat, unless sooner dissolved under any law for the time being in force, shall continue for five years from the date appointed for its first meeting and no longer.

15. (2)

16. (1) Article-25:- Freedom of conscience and free profession, practice and propagation of religion.

Article-40:- Organisation of village panchayat-the state shall take steps to organize village panchayats and endow them with such power and authority as may be necessary to enable them to function as units of self-government.

Article-59:- Conditions of the presidents's office.

17. (2)

18. (1)

19. (4) 10 min tea break in cricket test match.

In ODI cricket match interval is set for 45 min.

In T20 cricket match official 10-min break between the innings.

20. (3) Daniel Bernoulli - Applied the idea of energy conservation to fluids in motion.

Evangelista Torricelli who was the first man to create a sustained vacuum and to discover the principle of a barometer.

Eugène Bourdon patented the pressure-measuring device commonly known today as the Bourdon tube.

21. (2) Ulothrix is a genus of non-branching filamentous green algae, generally found in fresh and marine water. Spirogyra: It in used for anti-biotic, antirvl's antioxidant, anti-inflammatory and cytotoxic purposes.

Volvox:- This is used in a genetic and development model to further understand the cellular differentiation.

22. (4)

23. (4) Rolling Plan was the sixth five year plan introduced by the Janata Government for the time period 1978-83, after removing the fifth five year plan in 1977-78.

24. (3) The Kanva dynasty was founded by Vasudeva Kanva.Vasudeva Kanva killed the Shunga ruler Devabhuti and established his own empire in 72 BCE.

25. (4) On January 26, 1950 Tripura was accorded the status of a 'C' category state and on November 1, 1956, it was recognized as a Union Territory. With the sustained efforts and struggle of the people of Tripura, it gained full statehood on January 21, 1972, as per the North-East Reorganisation Act, 1971.

1. (2) 2. (1) 3. (2) 4. (4) 5. (2)
6. (3) 7. (4) 8. (4) 9. (3) 10.(2)
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21.(2) 22.(4) 23.(4) 24.(3) 25.(4)

GENERAL INTELLIGENCE & REASONING

1. (2)
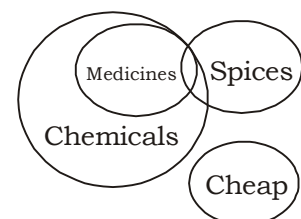
2. (4) 50 * 25 * 10 * 2 * 175

Putting +, ×, ÷, =

50 + 25 × 10 ÷ 2 = 175

⇒ 50 + 125 × 5 = 175

⇒ 50 + 125 = 175

⇒ 175 = 175

3. (4) P × Q – R

P^+

|

Q——R

So, P is the father of R.

4. (2) 10 × 11 + 19 – 323 ÷ 3 = 50.

interchanging 3 and 19, – and ×.

⇒ 10 – 11 + 3 × 323 ÷ 19 = 50

⇒ –1 + 3 × 17 = 50

⇒ –1 + 51 = 50

⇒ 50 = 50

5. (4) C A K E S   A B U S E

+3 –3 +3 –3 +3   +3 –3 +3 –3 +3

F X N B V   D Y X P H

Similarly,   B A R K S

+3 –3 +3 –3 +3

E X U H V

6. (3) 26th November 1994

$5 + 4 + 23 + 3 = \dfrac{35}{7}$

Remainder ⇒ 0

0 ⇒ Saturday.

7. (3) C $\underline{+4}$ G $\underline{+4}$ K $\underline{+4}$ O $\underline{+4}$ S

O $\underline{-6}$ I $\underline{-6}$ C $\underline{-6}$ W $\underline{-6}$ Q

M $\underline{+8}$ U $\underline{+8}$ C $\underline{+8}$ K $\underline{+8}$ S

B $\underline{-10}$ R $\underline{-10}$ H $\underline{-10}$ X $\underline{-10}$ N

8. (3) $12^2 + 13^2 = 144 + 169 = 313$

$11^2 + 8^2 = 121 + 64 = 185$

Similarly,

$9^2 + 3^2 = 81 + 9 = 90$

9. (4) (6 × 17) × 4 = 408

(13 × 27) × 4 = 1408

Similarly,

(4 × 26) × 4 = 416

10. (2) From fig (2) and (3)

$2 < \begin{matrix} 6 - 3 \\ 1 - 4 \end{matrix}$ 2 ↔ 5

11. (4)

12. (4)

13. (4)

14. (2)

L $\overset{-2}{\rightarrow}$ J I   G $\overset{-3}{\rightarrow}$ D A

         $\underset{-1}{\uparrow}$ $\underset{-3}{\uparrow}$

N $\overset{-2}{\rightarrow}$ L K   T $\overset{-2}{\rightarrow}$ R Q

         $\underset{-1}{\uparrow}$ $\underset{-1}{\uparrow}$
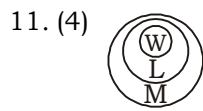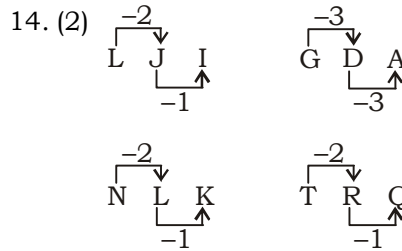
15. (3) R $\underline{-8}$ J $\underline{-6}$ D $\underline{-4}$ Z $\underline{-2}$ X

D $\underline{+2}$ F $\underline{+4}$ J $\underline{+6}$ P $\underline{+8}$ X

16. (1) S T A B L E   A E Q R Z J

and,

T A R G E T   A E R P E R

Similarly,

V I S U A L   I U A T Q J
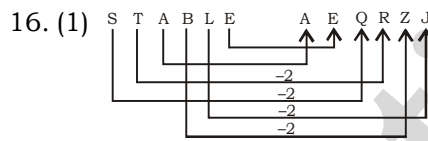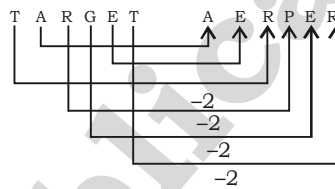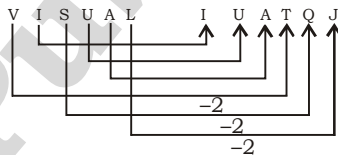
Note : First two or three vowels written together from given code and after that the remaining consonant are written two place back in the given sequence.

17. (2) 7 × 8 + 4 – 6 ÷ 3 = 57

interchanging × and +, 7 and 4

⇒ 4 + 8 × 7 – 6 ÷ 3 = 57

⇒ 4 + 56 – 2 = 57

⇒ 60 – 2 = 57

⇒ 58 = 57 (incorrect)

ii   4 × 8 – 9 ÷ 3 + 7 = 3

7 + 8 – 9 ÷ 3 × 4 = 3

15 – 12 = 3

3 = 3 (correct)

18. (1) Rotated the figure anticlock wise 90°.

19. (2)

E N G I N E

E N I G N E

and

T R A I N

N I A R T

Similarly,

L E V E L

L E V E L
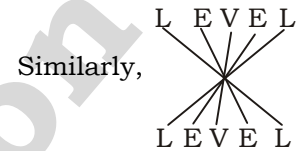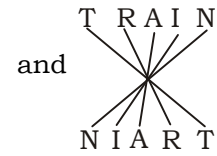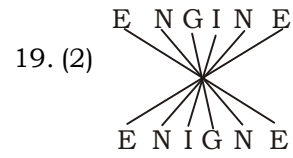
20. (2) $\dfrac{600}{10} \times 2 = 120$, $\dfrac{120}{10} \times 2 = 24$

$\dfrac{400}{10} \times 2 = 80$, $\dfrac{80}{10} \times 2 = 16 \neq 14$

$\dfrac{300}{10} \times 2 = 60$, $\dfrac{60}{10} \times 2 = 12$

$\dfrac{500}{10} \times 2 = 100$, $\dfrac{100}{10} \times 2 = 20$

21. (2) 96 is divisible by 8

216 is divisible by 12

Similarly, 54 is divisible by 6 (any other option are not satisfy)

22. (2) C # D @ E % Z & L # M – N * P

$N \Longleftrightarrow P^+$

|

$C^- \longleftrightarrow D^+ \Longleftrightarrow E^+ \Longleftrightarrow L^- —— M^-$

|

Z
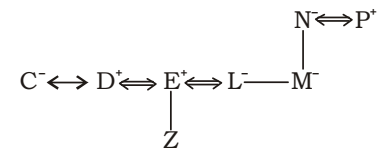
So, L is Daughter of P.

23. (2) A panel consists of Jurors.

Similarly, A security such as a bond stocks etc consists in a Portfolio.

24. (2)

1   4   13   40   121   364

$\underset{×3+1}{}$ $\underset{×3+1}{}$ $\underset{×3+1}{}$ $\underset{×3+1}{}$ $\underset{×3+1}{}$

25. (2)

1. (2) 2. (4) 3. (4) 4. (2) 5. (4)
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11.(4) 12.(4) 13.(4) 14.(2) 15.(3)
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4. (4) "consequences" is incorrectly spelt.

Meaning - a result or effect, typically one that is unwelcome or unpleasant. (परिणाम, दुष्परिणाम)

7. (4) "sent to the head office" is correct substitute.

10. (2) "by leaps and bounds " means very quickly, swiftly. (तीव्र गति से)

14. (2) "be beware of" is correct phrase. It means- to be careful or cautious. (सावधान होना)

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Words	Meaning in English	Meaning in Hindi
Abominable	Very bad; shocking. *Anto. admirable*	बहुत बुरा; घिनौना
Affluent	Having plenty of money and the things money can buy, rich	धनी
Alliteration	Commencement of adjacent words with the same letter (Eg:- Peter Piper picked a peck of pickled pappers.	अनुप्रास अलंकार
Attic	The space or room just under the roof of a house often used for storing things.	अटारी
Contamination	Something that contaminates	दूषण
Catalogue	A complete list of items, typically one in alphabetical or other systematic order.	सूची, श्रृंखला
Croft	A small enclosed field usually adjoining a house.	चक, बाड़ा
Feud	An angry and serious argument between two people or groups that continues over a long period of time, vendetta *Ant. harmony.*	पुश्तैनी रंजिश
Hyperbole	In this figure of speech exaggeration is used for emphasis or effect.	अतिशयोक्ति
Metaphor	A figure of speech in which a word or phrase literally denoting one kind of object or idea is used in place of another to suggest a likeness or analogy between them. *Ex:- My father is a big Banyan tree of our family.*	रूपकालंकार, अलंकार
Ranch	A large farm, where cows, horses, sheep, etc. are kept.	पशु-फार्म
Ostentatious	Characterized by pretentious or showy display; designed to impress, flamboyant	आडंबरपूर्ण, दिखावटी
Obese	Having excessive body fat	मोटा
Pun	It involves words with similar sound but with different meaning.	दो अर्थों वाले एक-समान उच्चारण परंतु भिन्न अर्थों वाले शब्दों का विनोदी प्रयोग
Purification	The removal of contaminants from something.	शुद्धिकरण