

Section : Quantitative Aptitude

Q.1 The value of $\frac{8 \div [(8-3) \div \{(4 \div 4 \text{ of } 8) + 4 - 4 \times 4 \div 8\} - 2]}{8 \times 8 \div 4 - 8 \div 8 \text{ of } 2 - 7}$ is:

- Ans
- 1. $\frac{2}{17}$
 - 2. $\frac{8}{3}$
 - 3. $\frac{17}{8}$
 - 4. $\frac{16}{170}$

Q.2 A sum of ₹8,000 invested at 10% p.a. amounts to ₹9,261 in a certain time, interest compounded half-yearly. What will be the compound interest (in ₹) on the same sum for the same time at double the earlier rate of interest, when interest is compounded annually?

- Ans**
- 1. ₹2,520
 - 2. ₹2,560
 - 3. ₹2,500
 - 4. ₹2,480

Q.3 If $\sec\theta + \tan\theta = p, 0^\circ < \theta < 90^\circ$, then $\frac{p^2-1}{p^2+1}$ is equal to:

- Ans**
- 1. $\sin\theta$
 - 2. $2\operatorname{cosec}\theta$
 - 3. $\operatorname{cosec}\theta$
 - 4. $\cos\theta$

Q.4 In $\triangle ABC$, $\angle B = 72^\circ$ and $\angle C = 44^\circ$. Side BC is produced to D. The bisectors of $\angle B$ and $\angle ACD$ meet at E. What is the measure of $\angle BEC$?

- Ans**
- 1. 32°
 - 2. 46°
 - 3. 36°
 - 4. 58°

Q.5 The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the question that follows.

Years →	2013	2014	2015	2016	2017	2018
Motorcycles (type) ↓						
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

During 2015, the production of which type of motorcycle was more than 25% of the total production of all types of motorcycles in 2017?

- Ans**
- 1. A
 - 2. C
 - 3. B
 - 4. D

Q.6 The average age of a number of persons in a group was calculated as 35 years, which was 2.5 years more than the correct average as there was an error in recording the age of two persons as 38.5 years and 40 years instead of 29 years and 22 years respectively. The number of persons in the group was:

- Ans**
- 1. 15
 - 2. 13
 - 3. 12
 - 4. 11

Q.7 A sum of ₹ x was divided between A, B, C and D in the ratio $\frac{1}{3} : \frac{1}{5} : \frac{1}{6} : \frac{1}{9}$. If the difference between the shares of B and D is ₹832, then the value of x is:

- Ans**
- 1. ₹7,384
 - 2. ₹7,488
 - 3. ₹7,696
 - 4. ₹7,592

Q.8 The area of a field in the shape of a regular hexagon is $2400\sqrt{3} \text{ m}^2$. The cost of fencing the field at ₹16.80/metre is:

- Ans
- 1. ₹4,032
 - 2. ₹3,528
 - 3. ₹4,536
 - 4. ₹3,024

Q.9 If the selling price of an article is 8% more than the cost price and the discount offered is 10% on the marked price of the article, then what is the ratio of the cost price to the marked price?

- Ans
- 1. 8 : 9
 - 2. 5 : 6
 - 3. 4 : 5
 - 4. 3 : 4

Q.10 If $12x^2 - 21x + 1 = 0$, then what is the value of $9x^2 + (16x^2)^{-1}$?

- Ans
- 1. $\frac{417}{16}$
 - 2. $\frac{453}{8}$
 - 3. $\frac{465}{16}$
 - 4. $\frac{429}{8}$

Q.11 If $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8zx = (Ax + y + Bz)^2$, then the value of $(A^2 + B^2 - AB)$ is:

- Ans
- 1. 16
 - 2. 6
 - 3. 14
 - 4. 18

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Q.12 A sells an article to B at a loss of 20%, B sells it to C at a profit of 12.5% and C sells it to D at a loss of 8%. If D buys it for ₹248.40, then what is the difference between the loss incurred by A and C?

- Ans**
- 1. ₹36.80
 - 2. ₹39.20
 - 3. ₹38.40
 - 4. ₹42.60

Q.13 Places A and B are 144 km apart. Two cars start simultaneously, one from A and the other from B. If they move in the same direction, they meet after 12 hours, but if they move towards each other they meet after $\frac{9}{8}$ hours. The speed (in km/h) of the car moving at a faster speed, is:

- Ans**
- 1. 72
 - 2. 60
 - 3. 70
 - 4. 64

Q.14 Four men and 6 women can complete a certain piece of work in 5 days whereas three men and 4 women can complete it in 7 days. How many men should assist 25 women to complete $2\frac{1}{2}$ times the same work in 5 days?

- Ans**
- 1. 4
 - 2. 8
 - 3. 10
 - 4. 5

Q.15 How many numbers are there from 200 to 800 which are neither divisible by 5 nor by 7?

- Ans**
- 1. 410
 - 2. 411
 - 3. 407
 - 4. 413

Q.16 If $7\cos^2\theta + 3\sin^2\theta = 6$, $0^\circ < \theta < 90^\circ$, then the value of $\frac{\cot^2 2\theta + \sec^2 2\theta}{\tan^2 2\theta - \sin^2 2\theta}$ is:

- Ans
- 1. $\frac{28}{27}$
 - 2. $\frac{52}{27}$
 - 3. $\frac{26}{15}$
 - 4. $\frac{49}{45}$

Q.17 In $\triangle ABC$, $AC = 8.4$ cm and $BC = 14$ cm. P is a point on AB such that $CP = 11.2$ cm and $\angle ACP = \angle B$. What is the length (in cm) of BP?

- Ans
- 1. 2.8
 - 2. 4.12
 - 3. 3.78
 - 4. 3.6

Q.18 The value of $\frac{(\cos 9^\circ + \sin 81^\circ)(\sec 9^\circ + \operatorname{cosec} 81^\circ)}{2\sin^2 63^\circ + 1 + 2\sin^2 27^\circ}$ is:

- Ans
- 1. 2
 - 2. $\frac{4}{3}$
 - 3. 1
 - 4. $\frac{1}{2}$

Q.19 Two circles of radii 7 cm and 5 cm intersect each other at A and B, and the distance between their centres is 10 cm. The length (in cm) of the common chord AB is:

- Ans
- 1. $\frac{2\sqrt{74}}{5}$
 - 2. $\frac{4\sqrt{66}}{5}$
 - 3. $\frac{3\sqrt{66}}{5}$
 - 4. $\frac{3\sqrt{74}}{5}$

Q.20 A, B and C donate 8%, 7% and 9%, of their salaries, respectively to a charitable trust. The salaries of A and B are same and the difference between their donations is ₹259. The total donation of A and B is ₹1,185 more than that of C. The total donation of A and C is what percentage of the total salaries of A, B and C? (Correct to one decimal place)

- Ans
- 1. 6.4%
 - 2. 7.1%
 - 3. 6.2%
 - 4. 5.8%

Q.21 The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the question that follows.

Years →	2013	2014	2015	2016	2017	2018
Motorcycles (type) ↓						
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

By what percentage is the total production of type A motorcycles over six years, less than the total production of all types of motorcycles in 2013 and 2016?

- Ans
- 1. 31.6
 - 2. 32.8
 - 3. 30.5
 - 4. 32.2

Q.22 If $x + y + z = 3$, and $x^2 + y^2 + z^2 = 101$, then what is the value of $\sqrt{x^3 + y^3 + z^3 - 3xyz}$?

- Ans**
- ✓ 1. 21
 - ✗ 2. 28
 - ✗ 3. 24
 - ✗ 4. 19

Q.23 The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the question that follows.

Years →	2013	2014	2015	2016	2017	2018
Motorcycles (type) ↓						
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

What is the percentage increase in the total production of all types of motorcycles from 2014 to 2018?

- Ans**
- ✓ 1. $16\frac{2}{3}$
 - ✗ 2. $17\frac{1}{3}$
 - ✗ 3. $14\frac{2}{7}$
 - ✗ 4. $14\frac{3}{7}$

Q.24 The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the question that follows.

Years →	2013	2014	2015	2016	2017	2018
Motorcycles (type) ↓						
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

What is the ratio of the total number of motorcycles of type B produced in 2016 and 2018 to the total number of motorcycles of type D produced in 2013, 2015 and 2016?

- Ans**
- 1. 3 : 5
 - 2. 3 : 4
 - 3. 2 : 3
 - 4. 1 : 2

Q.25 The chords AB and CD of a circle intersect at E. If AE = 12 cm, BE = 20.25 cm and CE = 3 DE, then the length (in cm) of CE is:

- Ans**
- 1. 25.5
 - 2. 27
 - 3. 28.5
 - 4. 18



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