

CAT QUANTITATIVE APTITUDE — PRACTICE SERIES

20-Question Practice Set

Mixed-Topic Drill with Full Solutions

20 Questions

4 Options Each

Answer Key

Full Solutions

Difficulty Tagged

● Easy ● Medium ● Tough

EXAM: CAT (Common Admission Test) SECTION: Quantitative Aptitude

Set Overview

Field	Detail
Total Questions	20 (6 Easy · 8 Medium · 6 Tough)
Topics Covered	Arithmetic, Algebra, Number Systems, Geometry & Mensuration, Modern Math
Format	Multiple Choice (4 options), single correct answer
Best Used As	Timed practice drill followed by solution review

Questions 1-20

Q1. Arithmetic - Profit & Loss

EASY

A shopkeeper marks up an item's price by 40% above cost price and then offers a discount of 20% on the marked price. Find his net profit percentage.

- A. 20%
- B. 12%**
- C. 8%
- D. 14%

Correct Answer: B – 12%

Solution: Let CP = 100. Marked Price = $100 \times 1.4 = 140$. Selling Price after 20% discount = $140 \times 0.8 = 112$. Net profit = $112 - 100 = 12$, i.e. **12%**.

Q2. Number Systems - Remainders

EASY

Find the remainder when 2^{10} is divided by 7.

- A. 1
- B. 2**
- C. 4
- D. 6

Correct Answer: B – 2

Solution: $2^3 = 8 \equiv 1 \pmod{7}$. So $2^{10} = 2^9 \times 2 = (2^3)^3 \times 2 \equiv 1^3 \times 2 = 2 \pmod{7}$. Remainder = 2.

Q3. Algebra - Basic Identities

EASY

If $x + 1/x = 3$, find the value of $x^2 + 1/x^2$.

- A. 7**
- B. 9
- C. 11
- D. 5

Correct Answer: A – 7

Solution: Squaring both sides: $(x + 1/x)^2 = x^2 + 2 + 1/x^2 = 9$. So $x^2 + 1/x^2 = 9 - 2 = 7$.

Q4. Geometry - Triangles

EASY

Find the area of a triangle with sides 6 cm, 8 cm, and 10 cm.

- A. 24 cm²**
- B. 30 cm²
- C. 20 cm²
- D. 48 cm²

Correct Answer: A – 24 cm²

Solution: Since $6^2 + 8^2 = 36 + 64 = 100 = 10^2$, this is a right triangle with legs 6 and 8. Area = $\frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$.

Q5. Modern Math - Circular Arrangements

EASY

In how many ways can 4 distinct people be seated around a circular table?

- A. 6
- B. 24
- C. 12
- D. 4

Correct Answer: A – 6

Solution: Circular arrangements of n distinct items = $(n-1)!$. For $n=4$: $(4-1)! = 3! = 6$.

Q6. Arithmetic - Averages

EASY

Find the average of the first 10 natural numbers.

- A. 5
- B. 5.5
- C. 6
- D. 10

Correct Answer: B – 5.5

Solution: Sum of first 10 natural numbers = $10 \times 11 / 2 = 55$. Average = $55 / 10 = 5.5$.

Q7. Arithmetic - Time, Speed & Distance

MEDIUM

A train 150 m long crosses a platform 250 m long in 20 seconds. Find the speed of the train in km/h.

- A. 72 km/h
- B. 60 km/h
- C. 80 km/h
- D. 54 km/h

Correct Answer: A – 72 km/h

Solution: Total distance covered = length of train + length of platform = $150 + 250 = 400$ m. Speed = $400 / 20 = 20$ m/s = $20 \times 18 / 5 = 72$ km/h.

Q8. Arithmetic - Time & Work

MEDIUM

A can complete a work in 12 days and B in 18 days. They work together for 4 days, after which A leaves. In how many more days will B finish the remaining work alone?

- A. 8 days
- B. 6 days
- C. 9 days
- D. 10 days

Correct Answer: A – 8 days

Solution: Combined rate = $1/12 + 1/18 = 5/36$ per day. Work done in 4 days = $20/36 = 5/9$. Remaining work = $4/9$. B's rate = $1/18$ per day, so time needed = $(4/9) \div (1/18) = 8$ days.

Q9. Arithmetic - Compound Interest

MEDIUM

Find the compound interest on Rs. 10,000 at 10% per annum for 2 years, compounded annually.

- A. Rs. 2,100
- B. Rs. 2,000
- C. Rs. 2,200
- D. Rs. 1,900

Correct Answer: A – Rs. 2,100

Solution: Amount = $10000 \times (1.1)^2 = 10000 \times 1.21 = 12,100$. CI = $12,100 - 10,000 = \text{Rs. } 2,100$.

Q10. Algebra - Quadratic Equations

MEDIUM

If the roots of $x^2 - 7x + 12 = 0$ are α and β , find $\alpha^2 + \beta^2$.

- A. 25
- B. 37
- C. 13
- D. 49

Correct Answer: A – 25

Solution: Sum of roots $\alpha + \beta = 7$, product $\alpha\beta = 12$. $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = 49 - 24 = 25$.

Q11. Number Systems - Factorials**MEDIUM**

Find the number of trailing zeros at the end of 100!.

A. 24

B. 20

C. 25

D. 19

Correct Answer: A – 24**Solution:** Trailing zeros = highest power of 5 dividing 100! = $[100/5] + [100/25] = 20 + 4 = 24$.**Q12. Geometry - Circles****MEDIUM**

A chord of length 16 cm is at a distance of 6 cm from the center of a circle. Find the radius of the circle.

A. 10 cm

B. 8 cm

C. 12 cm

D. 9 cm

Correct Answer: A – 10 cm**Solution:** The perpendicular from the center bisects the chord, giving a half-chord of 8 cm. Radius: $r^2 = 8^2 + 6^2 = 64 + 36 = 100 \Rightarrow r = 10$ cm.**Q13. Mensuration - Cone Volume****MEDIUM**

Find the volume of a cone with radius 7 cm and height 24 cm. (Use $\pi = 22/7$)

A. 1232 cm³B. 1848 cm³C. 1100 cm³D. 1386 cm³**Correct Answer: A – 1232 cm³****Solution:** $V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times 22/7 \times 49 \times 24 = \frac{1}{3} \times 22 \times 7 \times 24 = 1232$ cm³.**Q14. Modern Math - Probability****MEDIUM**

Two fair dice are thrown together. Find the probability that the sum of the numbers shown is 8.

A. 5/36

B. 1/6

C. 6/36

D. 4/36

Correct Answer: A – 5/36**Solution:** Favorable outcomes summing to 8: (2,6),(3,5),(4,4),(5,3),(6,2) – 5 outcomes out of 36 total. Probability = $5/36$.**Q15. Algebra - Functions****TOUGH**

If $f(x) = 2x + 3$ and $g(x) = x^2 - 1$, find the value of $f(g(2))$.

A. 9

B. 7

C. 11

D. 5

Correct Answer: A – 9**Solution:** $g(2) = 2^2 - 1 = 3$. Then $f(g(2)) = f(3) = 2(3) + 3 = 9$.**Q16. Number Systems - Cyclicity****TOUGH**

Find the remainder when 7^{100} is divided by 100.

A. 1

B. 7

C. 49

D. 43

Correct Answer: A – 1**Solution:** $7^4 = 2401 \equiv 1 \pmod{100}$. Since $100 = 4 \times 25$, $7^{100} = (7^4)^{25} \equiv 1^{25} = 1 \pmod{100}$. Remainder = 1.

Q17. Arithmetic - Boats & Streams**TOUGH**

A boat's speed in still water is 15 km/h. It covers a certain distance downstream in 2 hours and returns the same distance upstream in 3 hours. Find the speed of the stream.

A. 3 km/h

B. 4 km/h

C. 5 km/h

D. 2 km/h

Correct Answer: A – 3 km/h

Solution: Let stream speed = v . Distance downstream = $2(15+v)$; distance upstream = $3(15-v)$. Equating: $2(15+v) = 3(15-v) = 30+2v = 45-3v \Rightarrow 5v = 15 \Rightarrow v = 3$ km/h.

Q18. Modern Math - Permutations**TOUGH**

In how many ways can the letters of the word "EQUAL" be arranged such that all the vowels always appear together?

A. 36

B. 72

C. 120

D. 24

Correct Answer: A – 36

Solution: "EQUAL" has vowels E, U, A (3) and consonants Q, L (2). Treat the vowel block as one unit: arrange (block + 2 consonants) = $3! = 6$ ways. Arrange vowels within the block = $3! = 6$ ways. Total = $6 \times 6 = 36$.

Q19. Coordinate Geometry - Area of Triangle**TOUGH**

Find the area of the triangle with vertices (1, 2), (4, 6), and (6, 2).

A. 10 sq. units

B. 12 sq. units

C. 8 sq. units

D. 14 sq. units

Correct Answer: A – 10 sq. units

Solution: Area = $\frac{1}{2}|x_1(y_2-y_3)+x_2(y_3-y_1)+x_3(y_1-y_2)| = \frac{1}{2}|1(6-2)+4(2-2)+6(2-6)| = \frac{1}{2}|4+0-24| = \frac{1}{2}(20) = 10$ sq. units.

Q20. Algebra - Inequalities**TOUGH**

Find the number of integer values of x that satisfy $x^2 - 5x + 6 \leq 0$.

A. 2

B. 3

C. 4

D. 1

Correct Answer: A – 2

Solution: Factorizing: $x^2-5x+6 = (x-2)(x-3) \leq 0$, which holds for $2 \leq x \leq 3$. Integer values in this range: $x = 2$ and $x = 3$, i.e. 2 values.