

IB ACIO Quantitative Aptitude – Crash Course Pack (Volume 1)

Part A: Formulas (Topics 1–10)

Number System

- Divisibility rules (2,3,4,5,6,8,9,11)
- $LCM \times HCF = \text{Product of two numbers}$
- Remainder theorem
- Prime, composite, rational & irrational numbers

Simplification

- Follow BODMAS rule
- Approximation methods
- Simplify fractions and decimals

Average

- Average = Sum \div Count
- Weighted average formula

Percentage

- % = $(\text{Value} \div \text{Total}) \times 100$
- Increase/Decrease % formula
- Successive % change formula

Ratio & Proportion

- Ratio $a:b = a/b$
- Proportion $a/b=c/d \rightarrow ad=bc$
- Compound ratio concept

Age

- Present/Future/Past age problems form linear equations
- Use algebra for relation setup

Mixture & Alligation

- Mean Price = $(Q_1 \times P_1 + Q_2 \times P_2) / (Q_1 + Q_2)$
- Alligation rule: $(Q_1/Q_2) = (P_2 - M) / (M - P_1)$

Partnership

- Share = $(\text{Capital} \times \text{Time}) / \text{Total capital contribution}$

Simple & Compound Interest

- $SI = (P \times R \times T) / 100$
- $CI = P(1+R/100)^T - P$

Profit & Loss

- Profit = $SP - CP$
- Loss = $CP - SP$
- $\text{Profit\%} = (\text{Profit}/\text{CP}) \times 100$
- $\text{Loss\%} = (\text{Loss}/\text{CP}) \times 100$

Part B: Practice Questions & Answers (Topics 1–10)

Number System

Q1. Find HCF and LCM of 18 and 24

Solution: $18=2\times3^2$, $24=2^3\times3 \rightarrow \text{HCF}=6$, $\text{LCM}=72$

Q2. Find remainder when 572 is divided by 9

Solution: Sum of digits=14 \rightarrow remainder=5

Simplification

Q3. $(45 \div 5) + 18 \times 2$

Solution: $45 \div 5=9$, $18\times2=36 \rightarrow \text{sum}=45$

Q4. $(\sqrt{225} + 12^2) \div 3$

Solution: $15+144=159 \div 3=53$

Average

Q5. Average of 10,20,30,40,50

Solution: Sum=150 $\div 5=30$

Q6. Average of first 10 natural numbers

Solution: $(10+1)/2=5.5$

Percentage

Q7. Find 25% of 240

Solution: $25/100 \times 240=60$

Q8. Increase 200 by 20%

Solution: $200\times1.2=240$

Ratio & Proportion

Q9. If a:b=2:3 and b:c=4:5, find a:b:c

Solution: 8:12:15

Q10. Divide 1200 in ratio 3:5

Solution: 450 & 750

Age

Q11. Father+Son=50, father double son in 10 yrs

Solution: Father=30, Son=20

Mixture & Alligation

Q12. Mix milk(■20) & water(■0) to get ■15. Ratio?

Solution: $(20-15):(15-0)=1:3$

Partnership

Q13. A invests 20k for 6 months, B 30k for 4 months. Ratio?

Solution: 120:120=1:1

Simple & Compound Interest

Q14. SI on 5000 at 10% for 2 yrs

Solution: 1000

Q15. CI on 1000 at 10% for 2 yrs

Solution: 210

Profit & Loss

Q16. Book bought 200 sold 250. Profit%?

Solution: 25%

Note:

This is Volume 1 (Topics 1–10). First part gives formulas, second part gives solved model Q&A.; See Volume 2 for Topics 11–20.