TIME & WORK

Complete SSC CGL Examination Notes

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1. BASIC CONCEPTS

Fundamental Formulas

Work = Efficiency × Time

Efficiency = Work/Time

Time = Work/Efficiency

If A can do work in 'a' days: A's 1 day work = 1/a

If A's 1 day work = 1/a: Time taken by A = a days

Combined Work

(A+B)'s 1 day work = (1/a + 1/b)

Time taken by A+B = 1/(1/a + 1/b) = ab/(a+b)

If A+B can do work in N days:

A's share = (B's time/Total time) × Total wages

B's share = (A's time/Total time) × Total wages

2. EFFICIENCY BASED PROBLEMS

Key Concepts

Efficiency Ratio: If A is twice efficient as B, then:

• A:B efficiency = 2:1

• A:B time = 1:2

• Work ratio in same time = 2:1

Example: A is twice efficient as B. Together they complete work in 12 days.

Solution:

• Efficiency ratio A:B = 2:1

• Combined efficiency = 3 units/day

• Total work = 12 × 3 = 36 units

• A's time = 36/2 = 18 days, B's time = 36/1 = 36 days

3. PRACTICE PROBLEMS

Problem 1: A can do work in 15 days, B in 20 days. Together in how many days?

Solution:

• A's 1 day work = 1/15

• B's 1 day work = 1/20

• Together 1 day work = 1/15 + 1/20 = 7/60

• Time = 60/7 = **$8^{4}/_{7}$ days**

Problem 2: A and B together can do work in 12 days. A alone can do in 20 days. Find B's time

Solution:

• (A+B)'s 1 day work = 1/12

• A's 1 day work = 1/20

• B's 1 day work = 1/12 - 1/20 = 2/60 = 1/30

• B's time = **30 days**

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