

Pipes And Cistern Questions Overview

Pipes And Cistern Questions have a good weightage in the Banking Exam and the type of question asked in Banking exam is similar to the question mentioned below. It has been solved and explained by Gargi.ai Experts and they have tried to elaborate the concept used in Pipes And Cistern Questions.

Question

Two pipes A and B can fill a tank in 60 hours and 40 hours respectively and pipe C can empty the tank in 15 hours. If pipes A and B are opened for 12 hours, then pipe C is also opened. After how many hours, the tank will be emptied?

Difficulty : Moderate

Average Time : 38 Seconds

Options :

1. 15 hours
2. 20 hours
3. 12.5 hours
4. 10 hours
5. None of these

Solution

The correct answer is **Option 2** i.e. **20 hours**

Understanding

Application

Two pipes A and B can fill a tank in 60 hours and 40 hours respectively and pipe C can empty the tank in 15 hours.

Suppose the capacity of tank = LCM of 60, 40 and 15
= 120 units

Hence,

$$\begin{aligned} \text{Efficiency of A} &= \\ 120/60 &= 2 \end{aligned}$$

$$\begin{aligned} \text{Efficiency of B} &= \\ 120/40 &= 3 \end{aligned}$$

$$\begin{aligned} \text{Efficiency of C} &= \\ 120/15 &= 8 \end{aligned}$$

So,

Tank filled in 12 hours

$$= 12 \times (2 + 3)$$

$$= 60 \text{ units}$$

Pipe C is also opened.

So,

Time in which tank will be empty

$$= 60/(2 + 3 - 8)$$

$$= -60/3$$

$$= -20$$

20 hours is the answer.

Efficiency = Work/Time

Pipes A and B are opened for 12 hours.

$$\begin{aligned} \text{Remaining tank} &= 120 - 60 \\ &= 60 \text{ units} \end{aligned}$$