

Spardhaguru Skill Edge Aptitude Academy

1st Floor, 608, Panchamantra Rd, P and T Block, Jayanagar, Kuvempunagara, Mysuru, Karnataka 570023

Part 1: Basic & Combined Efficiency (Prelims Level)

Concept 1: Two-Pipe / Three-Pipe Filling & Emptying (Net Work)

1. Pipe A can fill a tank in 12 minutes, while Pipe B can empty the same tank in 15 minutes. If both pipes are opened simultaneously in an empty tank, in how much time will the tank be completely filled or emptied?

2. Three taps A, B, and C can fill an empty cistern in 10 hours, 12 hours, and 15 hours respectively. If all three taps are opened together, find the time taken to fill the cistern.

Concept 2: Leakage and Reduced Efficiency

3. A pump can normally fill a water tank in 3 hours. Due to a leak at the bottom, it takes 3 hours and 30 minutes to fill the tank. In how many hours can the leak alone empty the completely filled tank?

4. An inlet pipe fills a tank at the rate of 6 liters/minute. A leak at the bottom can empty the full tank in 12 hours. When the tank is full, both the inlet and the leak are open, and the tank is emptied in 15 hours. Find the capacity of the tank.

Part 2: Intermediate & Conditional Operations (Prelims/Mains Level)

Concept 3: Sequential & Interrupted Operations

5. Two pipes A and B can fill a tank in 20 minutes and 30 minutes respectively. Both pipes are kept open for 10 minutes, and then pipe A is shut off. How much more time will pipe B take to fill the remaining part of the tank?

6. Taps A and B can fill a cistern in 12 minutes and 15 minutes respectively. Both are opened together, but tap A is closed after 3 minutes. How much further time will tap B take to fill the bucket completely?

7. Two pipes A and B can fill a cistern in 15 hours and 20 hours respectively, while a third pipe C can empty it in 25 hours. All three pipes are opened together in the beginning. After 10 hours, pipe C is closed. In total how much time will the tank take to be filled?

Concept 4:

Proportional Efficiency & Variable Rates

8. Pipe A is 4 times as fast as Pipe B in filling a tank. If together they can fill the tank in 36 minutes, find the time taken by the slower pipe alone to fill the tank.

9. If pipe A is 6 times faster than pipe B and takes 25 minutes less than pipe B to fill a tank, what is the time taken to fill the tank when both pipes are opened together?

Part 3: Advanced Logical & Mains Level (SBI/IBPS Mains)

Concept 5:

Alternate Hour / Minute Operations

10. Two pipes A and B can fill a tank in 6 hours and 4 hours respectively. If they are opened alternately for one hour each, starting with pipe A first, in how much time will the tank be filled?

11. Two pipes A and B can fill a tank in 5 hours and 4 hours respectively. If they are opened on alternate hours with pipe A opened first, how many hours will it take to fill the tank?

Concept 6:

Algebraic / Quadratic Relations

12. Two pipes A and B are opened together to fill a tank, taking a total time of t minutes. If pipe A separately takes 9 minutes more than t to fill the tank, and pipe B separately takes 16 minutes more than t to fill the tank, find the value of t .

13. A tank is filled by three pipes with uniform flow. The first two operating simultaneously fill the tank in the exact same time as the third pipe takes alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. Find the time required by the first pipe alone.

Concept 7:

Multi-Pipe Sequencing

14. A cistern has three pipes A, B, and C. Pipes A and B can fill it in 3 hours and 4 hours respectively, while pipe C can empty the completely filled cistern in 1 hour. If the pipes are opened sequentially at 3:00 PM (Pipe A), 4:00 PM (Pipe B), and 5:00 PM (Pipe C)

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respectively, at what time will the cistern be completely empty?

Moderate Level Practice Set

Q1 (SBI Clerk Prelims):

Two pipes, A and B, can fill a tank separately in 12 hours and 16 hours, respectively. If both of them are opened together when the tank is initially empty, how much time will it take to completely fill the tank?

- A) $7\frac{1}{7}$ hours B) $6\frac{6}{7}$ hours
C) $8\frac{1}{3}$ hours D) $5\frac{1}{2}$ hours

Q2 (IBPS PO Prelims):

A pipe can fill a tank in 10 hours, while another pipe can empty it in 15 hours. If both pipes are opened simultaneously in an empty tank, in how many hours will the tank be completely filled?

- A) 25 hours B) 20 hours
C) 30 hours D) 15 hours

Q3 (SSC CGL Tier-I):

Three pipes A, B, and C can fill an empty tank in 6 hours, 8 hours, and 12 hours respectively. If all three pipes are opened together, how long will it take to fill the tank?

- A) $2\frac{2}{3}$ hours B) $3\frac{1}{4}$ hours
C) $2\frac{1}{2}$ hours D) $3\frac{1}{2}$ hours

Q4 (RRB NTPC):

Pipe A can fill a tank in 20 minutes and pipe B can fill it in 30 minutes. Both pipes are opened together, but after 4 minutes, pipe A is turned off. What is the total time taken to fill the tank?

- A) 18 minutes B) 20 minutes
C) 16 minutes D) 24 minutes

Q5 (RBI Grade B):

A cistern has two pipes. One can fill it in 12 minutes and the other can empty it in 15 minutes. If both pipes are opened together in a completely empty cistern, how long will it take to fill it completely?

- A) 60 minutes B) 45 minutes
C) 50 minutes D) 30 minutes

Q6 (SBI PO Prelims):

Pipe A and Pipe B can fill a tank in 15 hours and 20 hours respectively, while Pipe C can empty it in 10 hours. If all three pipes are opened together in an empty tank, in how many hours will the tank be filled?

- A) 50 hours B) 60 hours
C) 40 hours D) 55 hours

Q7 (SSC CPO):

A pump can fill a tank with water in 2 hours. Because of a leak in the tank, it took $2\frac{1}{3}$ hours to fill the tank. Find the time in which the leak alone can empty the completely filled tank.

- A) 14 hours B) 12 hours
C) 16 hours D) 18 hours

Q8 (IBPS Clerk Mains):

Two pipes A and B can fill a cistern in 37.5 minutes and 45 minutes respectively. Both pipes are opened simultaneously. The cistern will be filled in just 30 minutes if pipe B is turned off after how many minutes?

- A) 8 minutes B) 10 minutes
C) 9 minutes D) 12 minutes

Q9 (UPSC CSAT):

A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. What is the time required by the first pipe?

- A) 12 hours B) 15 hours
C) 20 hours D) 10 hours

Q10 (RRB Group D):

Two pipes can fill a tank in 20 minutes and 30 minutes respectively. If both pipes are opened together, find the time taken to fill the tank.

- A) 12 minutes B) 15 minutes
C) 10 minutes D) 14 minutes

Q11 (SBI PO Mains):

Pipe A can fill a tank 3 times faster than pipe B, and both pipes together can fill the tank in 36 minutes.

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How many hours will be taken by pipe B alone to fill the tank?

- A) 2.4 hours B) 3.0 hours
C) 2.8 hours D) 3.6 hours

Q12 (IBPS SO):

A cistern has an inlet pipe P and an outlet pipe Q. Pipe P can fill the cistern in 10 hours, while Q can empty it in 15 hours. If both are opened alternately for 1 hour each starting with P, in how many hours will the cistern be filled?

- A) 58 hours B) 55 hours
C) 59 hours D) 57 hours

Q13 (SSC CGL Tier-II):

Three taps A, B, and C together can fill a tank in 12 minutes. Tap A can fill it in 30 minutes and Tap B can fill it in 40 minutes. Find the time taken by Tap C alone to fill the tank.

- A) 40 minutes B) 30 minutes
C) 20 minutes D) 18 minutes

Q14 (RBI Grade B):

Two pipes can fill a reservoir in 15 hours and 20 hours respectively. A third pipe can empty the full reservoir in 30 hours. If all three pipes are opened simultaneously, how long will it take to fill the empty reservoir?

- A) 12 hours B) $11\frac{1}{3}$ hours
C) $10\frac{5}{7}$ hours D) $9\frac{1}{2}$ hours

Q15 (SBI Clerk Mains):

An inlet pipe fills a tank in 30 minutes, and an outlet pipe empties it in 40 minutes. If both pipes are opened alternately for 2 minutes each starting with the inlet pipe, how long will it take to fill the tank?

- A) 236 minutes B) 231 minutes
C) 240 minutes D) 225 minutes

Q16 (IBPS PO Prelims):

Pipe A fills a tank in 16 hours and pipe B fills it in 24 hours. Both are opened together, but due to a bottom leak, it takes 4 hours more to fill the tank. In how many hours can the leak alone empty the full tank?

- A) 96 hours B) 72 hours
C) 80 hours D) 64 hours

Q17 (SSC CGL Tier-I):

A cistern can be filled by pipe A in 4 hours and pipe B in 6 hours. When full, the cistern can be emptied by pipe C in 8 hours. What fraction of the cistern will remain unfilled after 1 hour if all pipes are opened simultaneously?

- A) $\frac{13}{24}$ B) $\frac{11}{24}$ C) $\frac{17}{24}$ D) $\frac{5}{12}$

Q18 (RRB NTPC):

Two pipes A and B can fill a tank in 10 minutes and 20 minutes respectively. If both are opened together, find the time taken.

- A) $6\frac{2}{3}$ minutes B) $5\frac{1}{2}$ minutes
C) $7\frac{1}{3}$ minutes D) 8 minutes

Q19 (UPSC CSAT):

A water tank has three taps P, Q, and R. P can fill it in 12 hours, Q in 15 hours, and R can empty the full tank in 20 hours. If P and Q are opened for 3 hours and then closed, and R is opened immediately, how long will R take to empty the filled water?

- A) 4.5 hours B) 9 hours
C) 6.0 hours D) 3.6 hours

Q20 (SBI PO Prelims):

A pipe can fill a tank in 5 hours. Due to a leak, it takes 6 hours to fill the tank. What time will the leak take to empty the full tank?

- A) 30 hours B) 25 hours
C) 35 hours D) 20 hours

Q21 (IBPS Clerk Prelims):

Pipe A can fill a tank in 20 minutes, while Pipe B can empty it in 30 minutes. If both pipes are opened in an empty tank, how long will it take for the tank to be 60% full?

- A) 36 minutes B) 30 minutes
C) 40 minutes D) 25 minutes

Q22 (SSC CGL Tier-I):

Two pipes A and B can fill a tank in 24 minutes and 32 minutes respectively. If both pipes are opened together, after how much time should pipe B be closed so that the tank is full in 18 minutes?

- A) 6 minutes B) 8 minutes
C) 9 minutes D) 5 minutes

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Q23 (RRB NTPC):

A tank is filled in 5 hours by three pipes A, B, and C. The pipe C is twice as fast as B, and B is twice as fast as A. How much time will pipe A alone take to fill the tank?

- A) 35 hours B) 25 hours
C) 30 hours D) 40 hours

Q24 (RBI Grade B):

Three pipes A, B, and C can fill a tank in 6 hours. After working together for 2 hours, C is closed, and A and B fill the remaining part in 7 hours. Find the time taken by C alone to fill the tank.

- A) 14 hours B) 12 hours
C) 10.5 hours D) 15 hours

Q25 (SBI PO Mains):

Two pipes A and B independently fill a tank in 25 hours and 20 hours respectively. Both are opened together for 5 hours, after which the second pipe is turned off. What is the time taken by the first pipe alone to fill the remaining portion of the tank?

- A) $13\frac{3}{4}$ hours B) 14 hours
C) $11\frac{3}{4}$ hours D) 10 hours

Q26 (IBPS SO):

A cistern has two pipes P and Q. P can fill it in 12 minutes and Q can fill it in 15 minutes. Both are opened together, but after 3 minutes, pipe P is turned off. In how much time will the remaining tank be filled?

- A) $8\frac{1}{4}$ minutes B) $7\frac{1}{2}$ minutes
C) 9 minutes D) $6\frac{3}{4}$ minutes

Q27 (SSC CPO):

Pipe A can fill a tank in 10 hours and Pipe B can empty it in 15 hours. If both pipes are opened in alternate hours starting with Pipe A, in how many hours will the tank be completely filled?

- A) 55 hours B) 59 hours
C) 45 hours D) 60 hours

Q28 (RRB NTPC):

An empty cistern can be filled by tap A in 3 hours and tap B in 5 hours, while outlet tap C can empty the full cistern in 2 hours. If all three taps are opened together, how long will it take to fill the cistern?

- A) 30 hours B) 20 hours
C) 25 hours D) 35 hours

Q29 (UPSC CSAT):

A tank can be filled by pipe X in 2 hours and pipe Y in 6 hours. At 10:00 AM, pipe X is opened. At what time will the tank be filled if pipe Y is opened at 11:00 AM?

- A) 11:45 AM B) 12:00 PM
C) 11:30 AM D) 12:15 PM

Q30 (SBI Clerk Prelims):

Two pipes A and B can fill a tank in 12 minutes and 15 minutes respectively. If both are opened together and after 3 minutes pipe A is closed, find the total time to fill the tank.

- A) $11\frac{1}{4}$ minutes B) $10\frac{1}{2}$ minutes
C) $9\frac{3}{4}$ minutes D) 12 minutes

Q31 (IBPS PO Prelims):

A tap can fill a tank in 24 hours. Due to a leak in the bottom, it takes 36 hours to fill. If the tank is full, how long will the leak take to empty it?

- A) 72 hours B) 60 hours
C) 80 hours D) 90 hours

Q32 (SSC CGL Tier-I):

Three pipes A, B, and C can fill a tank in 10, 15, and 30 hours respectively. If A is opened continuously, and B and C are opened alternately for 1 hour each, how many hours will it take to fill the tank?

- A) $6\frac{3}{5}$ hours B) 7 hours
C) $5\frac{1}{2}$ hours D) 6 hours

Q33 (RRB NTPC):

Pipe A can fill a tank in 4 hours and pipe B in 6 hours. Both pipes are opened alternately for 1 hour each, starting with pipe A. In how many hours will the tank be filled?

- A) $4\frac{2}{3}$ hours B) $5\frac{1}{2}$ hours
C) 5 hours D) $4\frac{1}{2}$ hours

Q34 (RBI Grade B):

A cylindrical tank has a radius of 14 cm and height of 50 cm. A pipe fills it at a rate of 11 liters per minute.

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Find the time taken to fill the tank completely ($\pi = \frac{22}{7}$).

- A) 2.8 minutes B) 3.5 minutes
C) 2.5 minutes D) 3.0 minutes

Q35 (SBI PO Prelims):

Two pipes can fill a cistern in 14 hours and 16 hours respectively. The pipes are opened simultaneously, but it is found that due to a leak in the bottom, it took 32 minutes extra to fill the cistern. If the cistern is full, how long will the leak take to empty it?

- A) 112 hours B) 96 hours
C) 128 hours D) 100 hours

Q36 (IBPS Clerk Mains):

A tank is filled in 10 hours by three pipes A, B, and C. Pipe C is 4 times as fast as B, and B is 1.5 times as fast as A. How many hours will pipe A alone take to fill the tank?

- A) 85 hours B) 120 hours
C) 100 hours D) 95 hours

Q37 (SSC CGL Tier-II):

Pipe A can fill a tank in 12 minutes, and Pipe B can fill it in 15 minutes. Both are opened together, but after 3 minutes, Pipe A is closed. Find the total time taken to fill the tank.

- A) $11\frac{1}{4}$ minutes B) $10\frac{1}{2}$ minutes
C) 12 minutes D) $9\frac{3}{4}$ minutes

Q38 (RRB NTPC):

Three pipes A, B, and C can fill a tank in 6 hours. After working together for 2 hours, C is closed, and A and B fill the remaining part in 8 hours. Find the time taken by C alone to fill the tank.

- A) 12 hours B) 15 hours
C) 10 hours D) 18 hours

Q39 (UPSC CSAT):

A cistern can be filled by an inlet pipe in 8 hours and emptied by an outlet pipe in 12 hours. If both pipes are opened together when the cistern is $\frac{1}{4}$ th full, how long will it take to fill the cistern completely?

- A) 18 hours B) 15 hours
C) 20 hours D) 16 hours

Q40 (SBI PO Prelims):

Two pipes can fill a pool in 20 minutes and 30 minutes respectively. There is a drain pipe at the bottom that can empty the full pool in 60 minutes. If all three are opened together, in much time will the pool be filled?

- A) 15 minutes B) 12 minutes
C) 18 minutes D) 10 minutes

Q41 (IBPS PO Prelims):

A tap can fill a tank in 16 hours. Due to a leak, it takes 20 hours to fill. How much time will the leak take to empty the full tank?

- A) 80 hours B) 60 hours
C) 90 hours D) 70 hours

Q42 (SSC CGL Tier-I):

Pipe A can fill a tank in 12 minutes and Pipe B in 18 minutes. Both are opened together, but 4 minutes before the tank is filled, Pipe A is closed. Find the total time taken to fill the tank.

- A) $9\frac{3}{5}$ minutes B) $8\frac{1}{2}$ minutes
C) 10 minutes D) 9 minutes

Q43 (RRB NTPC):

Three pipes A, B, and C can fill an empty cistern in 10, 20, and 30 hours respectively. If pipes A, B, and C are opened sequentially for 1 hour each in that order, how many hours will it take to fill the cistern?

- A) $15\frac{5}{6}$ hours B) 15 hours
C) $14\frac{1}{2}$ hours D) 17 hours

Q44 (RBI Grade B):

A tank is filled by three pipes in 10 minutes, 15 minutes, and 18 minutes respectively. When the tank is empty, all three pipes are opened. Pipe A and B discharge water while pipe C acts as an outlet. Find the time to fill the tank.

- A) 9 minutes B) 12 minutes
C) 10 minutes D) 8 minutes

Q45 (SBI Clerk Mains):

Two pipes A and B can fill a tank in 24 hours and 40 hours respectively. If both pipes are opened together, find the time taken.

- A) 15 hours B) 12 hours
C) 18 hours D) 16 hours

Correct Answer: A

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Q46 (IBPS PO Prelims):

A pipe can fill a tank in 18 hours. Another pipe can empty it in 12 hours. If both pipes are opened in a full tank, how long will it take to empty it?

- A) 36 hours B) 24 hours
C) 30 hours D) 40 hours

Q47 (SSC CGL Tier-I):

Three pipes A, B, and C together can fill a tank in 4 hours. Pipe A takes 12 hours and pipe B takes 16 hours to fill the tank individually. How long will pipe C take to fill the tank alone?

- A) $9\frac{3}{5}$ hours B) $8\frac{1}{2}$ hours
C) 10 hours D) 11 hours

Q48 (RRB NTPC):

Two pipes can fill a tank in 10 minutes and 15 minutes. Both are opened, but due to an obstruction, the pipes deliver only $\frac{5}{6}$ th of their normal capacity. How long will it take to fill the tank?

- A) $7\frac{1}{5}$ minutes B) 8 minutes
C) 10 minutes D) 7.5 minutes

Q49 (UPSC CSAT):

A tank has a leak which would empty the completely filled tank in 10 hours. A tap is turned on which admits 4 liters of water a minute into the tank, and the tank is now emptied in 15 hours. What is the capacity of the tank?

- A) 7,200 liters B) 6,000 liters
C) 8,400 liters D) 5,400 liters

Q50 (SBI PO Mains):

Two taps can fill a tank in 20 minutes and 25 minutes respectively. Both taps are opened together, but after 5 minutes, the second tap is turned off. Find the total time taken to fill the tank.

- A) 16 minutes B) 15 minutes
C) 18 minutes D) 14 minutes