

**Pipes and Cistern Questions - Download PDF now!**

Pipes and Cistern questions are a common type of questions frequently asked in competitive exams. These questions carry a weightage of 1-2 questions (2-4 marks) in SSC exams and 1-2 questions in bank exams. To get a good rank in competitive exams, it is important to know the basic concept of Pipes and Cistern.

Here are some tips for solving Pipes and Cistern questions: You must know the difference between inlet and outlet pipes, filling and emptying tanks, and the formulas for calculating the time taken to fill or empty a tank. Then identify the objective of the question whether you are asked to find the time taken to fill the tank, the part of the tank that is filled in a certain time, etc. and then apply the appropriate formula.

So, we have attached 10 questions of Pipes and Cistern for you to practice with. You should aim to solve these questions in less than half a minute for each.

## Practice Questions on Pipes and Cistern

You can also download the Pipes and Cistern questions and answers pdf. Just click on the **Download PDF** button. So let's start with the very first question.

**Q:1** Two fill pipes P and Q fill a cistern in 10 minutes and 14 minutes respectively. Both the pipes are opened together, but 4 minutes before the cistern is full, pipe P is closed. How much time will the cistern take to fill?

1.  $8\frac{1}{6}$  minutes
2.  $1/6$  minutes
3. 5 minutes
4.  $6\frac{1}{8}$  minutes

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) It was not a straight one, right? More to come, Be ready!

**Q:2** One filler pipe A is 4 times more efficient than the second filler pipe B. Pipe A takes 9 minutes less time to fill a tank than B takes. Find when the tank will be filled if pipe B is only opened.

1. 12 minutes
2. 10 minutes
3. 8 minutes
4. 16 minutes

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) You might have got it, if your concepts are clear...

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**Q:3** Three pipes A, B and C can fill an empty cistern in 2, 4 and 8 hours respectively. The pipe C is closed 4 hours before the cistern was full. In what time will the cistern be full?

1.  $11/7$  hours
2.  $13/7$  hours
3.  $12/7$  hours
4.  $15/7$  hours

**(Difficulty: 3, Estimated Time: 20 Seconds)** It is not an easy one but I think now you're prepared for it. Did you guess it right?

**Q:4** Pipe A can fill a cistern in 10 hours while pipe B alone can fill the empty cistern in 20 hours and pipe C can empty the cistern in 30 hours. If all the three pipes are opened together, how much time it will take to completely fill the cistern?

1.  $5\frac{1}{11}$  hours
2.  $8\frac{4}{7}$  hours
3.  $5\frac{5}{7}$  hours
4.  $1/7$  hours

**(Difficulty: 2, Estimated Time: 15 Seconds)** Have you got all your questions correct so far?

**Q:5** A pipe can fill a cistern in 8 hours. It is filled in 9 hours due to a leakage in the bottom of the cistern. Once when the cistern is full, in how much time it will be emptied by the leak?

1. 72 hours
2. 56 hours
3. 48 hours
4. 45 hours

**(Difficulty: 2, Estimated Time: 15 Seconds)** We're halfway through. Well this was an easy one, isn't it?

**Q:6** There are two pipes in a tank. One is the inlet pipe and one is the outlet pipe. The inlet pipe can fill the tank in 8 hours and the outlet pipe can empty the tank in 12 hours. Find the time in which the tank will be filled or empty if both work together.

1. 18 hours
2. 20 hours

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3. 24 hours

4. 22 hours

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) The time is ticking. Hurry up!

**Q:7** There are 3 pipes A, B and C in a tank. Inlet pipes A and B together can fill the tank in 15 minutes while outlet pipe C can empty the full tank in 25 minutes. An outlet pipe D is also added to the tank. Now if all the pipes are opened together, the tank gets full in 50 minutes. Find the time in which pipe D alone can empty the full tank.

1. 120 minutes

2. 150 minutes

3. 140 minutes

4. 130 minutes

(**Difficulty:** 4, **Estimated Time:** 25 Seconds) This was a tricky one. Did you guess it right?

**Q:8** A cistern can be filled by two supply pipes P and Q in 20 mins and x mins respectively. If pipe P is working with  $\frac{2}{3}$ <sup>rd</sup> of its efficiency and pipe Q is working with half of its efficiency then the cistern gets full in 20 mins, find the value of x.

1. 30

2. 32

3. 40

4. 25

(**Difficulty:** 4, **Estimated Time:** 25 Seconds) It is a hard question but I think now you're prepared for it. Let's go ahead

**Q:9** There are two outlet pipes connected to a tank which can empty the tank in 2 hours and 3 hours respectively. There is an inlet pipe connected to the tank, which can fill it in 6 hours. Both the outlet pipes are opened when the tank is full. But by mistake, someone opened the inlet pipe when the tank was exactly half empty. Calculate the delay in time taken to empty the tank.

1. 8 minutes

2. 9 minutes

3. 4 minutes

4. 5 minutes

(**Difficulty:** 4, **Estimated Time:** 25 Seconds) It is different type of question. But you'll get these type of questions in the exam too. So, prepare yourself!

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**Q:10** A pipe can fill a cistern in 6 hrs. Due to a leak in its bottom, it is filled in 7 hrs. When the cistern is full and the pipe is closed, in how much time will it be emptied by the leak?

1. 42 hrs
2. 40 hrs
3. 43 hrs
4. 45 hrs

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) It was a piece of cake. Did you guess them all correctly?

## Answer Key

Let's check out your score in this test.

1. (1)	2. (1)	3. (3)	4. (2)	5. (1)
6. (3)	7. (2)	8. (1)	9. (2)	10. (1)

Comment below your score, considering each question has 1 mark only. If you scored 8 to 10, congratulations! You are one step closer to selection. If you have scored 5 to 8 marks, then you are doing well, keep it up. If you have scored less than 5 marks then you need to work a little harder on this subject. But don't worry, we are here to help you master the subject.

Let's check the answers and solutions and try to find out what went wrong.

## Answers and Solutions

**Q:1** The correct answer is **option 1** i.e.  $8\frac{1}{6}$  minute.

Solution :

Let the cistern will be full in x minutes.

According to the question,

Part filled by Q in x minutes + Part filled by P in (x - 4) minutes = 1

$$x/14 + (x - 4)/10 = 1$$

$$5x + 7(x - 4) = 70$$



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$$12x - 28 = 70$$

$$12x = 98$$

$$x = 98/12$$

$$x = 49/6$$

Therefore the cistern will be full in  $8\frac{1}{6}$  minutes

**Q:2** The correct answer is **option 1** i.e. **12 minutes**.

Solution :

Let pipe B fill the tank in x minutes.

Then A can fill the tank in x/4 minutes

Now, according to the question

$$x - x/4 = 9$$

$$(4x - x)/4 = 9$$

$$3x = 36$$

$$x = 12.$$

Hence pipe B takes 12 minutes to fill the tank

**Q:3** The correct answer is **option 3** i.e. **12/7 hours**

Let the total time taken to fill the cistern be t hours.

Now, according to question,

$$(t/2) + (t/4) + (t - 4)/8 = 1$$

$$4t + 2t + (t - 4) = 8$$

$$7t = 8 + 4$$

$$7t = 12$$

$$t = 12/7$$

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Hence the time taken to fill the cistern fully is  $12/7$  hours.

**Q:4** The correct answer is **option 2** i.e.  $8\frac{4}{7}$  hours.

Solution :

Let the capacity of the cistern be LCM of (10, 20, 30) = 60 units

Now, efficiency of A =  $60/10 = 6$  units/hour

Efficiency of B =  $60/20 = 3$  units/hour

Efficiency of C =  $60/30 = 2$  units/hour

Now the time taken to fill the cistern =  $60/(6 + 3 - 2) = 60/7 = 8\frac{4}{7}$  hours

**Q:5** The correct answer is **option 1** i.e. **72 hours**.

The part of cistern filled with the inlet pipe in one hour =  $1/8$

The part of cistern to be filled with both (inlet pipe + leak) in one hour =  $1/9$

The part of cistern emptied by the leak in 1 hour =  $(1/8 - 1/9) = 1/72$

Hence, the whole cistern is emptied in 72 hours by the leak

**Q:6** The correct answer is **option 3** i.e. **24 hours**

Work = time  $\times$  efficiency

	time	work	efficiency
A	8	24	3
B	12		- 2

Here -ve sign is used as the tank gets empty

If both work together,

Part of tank filled per hour =  $3 - 2 = 1$  unit

Number of hours in which tank gets filled =  $24/1 = 24$  hours

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**Q:7** The correct answer is **option 2** i.e. **150 minutes**.

Suppose the capacity of the tank = 75 units (LCM of 15 and 25)

Efficiency of (A + B) =  $75/15 = 5$

Efficiency of C =  $75/25 = 3$

Suppose the efficiency of D = x

Given: If all the pipes are opened together, the tank gets full in 50 minutes

So,

$$\Rightarrow 75/(5 - 3 - x) = 50$$

$$\Rightarrow (2 - x) = 1.5$$

$$\Rightarrow x = 0.5$$

Hence,

Time in which pipe D alone can empty the full tank =  $75/0.5 = 150$  minutes

**Q:8** The correct answer is **option 1** i.e. **30**

Suppose the capacity of cistern = 20x (LCM of 20 and x)

So,

Efficiency of P =  $20x/20 = x$

Efficiency of Q =  $20x/x = 20$

Given: If pipe P is working with  $2/3^{\text{rd}}$  of its efficiency and pipe Q is working with half of its efficiency then the cistern gets full in 20 mins.

So,

$$(2x/3 + 20/2) \times 20 = 20x$$

$$40x/3 + 200 = 20x$$

$$20x/3 = 200$$

$$x = 30$$

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**Q:9** The correct answer is **option 2** i.e. **9 minutes**

L.C.M of 2, 3, 1 = 6

Let the total capacity of the tank be 6 units.

Outlet pipe 1 will empty  $6/2 = 3$  units per hours

Outlet pipe 2 will empty  $6/3 = 2$  units per hours

So total time taken by them to empty the full tank =  $6/(3 + 2) = 6/5$  hours = 72 mins

But since the inlet pipe was opened when the tank was half empty i.e. when it was 3 units filled.

Inlet pipe can fill  $6/6 = 1$  unit per hour.

For the first 3 units, it was emptied by both outlet pipes so the time taken for 3 units =  $3/5$  hours = 36 mins

For the next 3 units, it is filled at 1 unit per hour and emptied at 5 units per hour

Or we can say it is emptied at 4 units per hour

Time taken =  $3/4$  hours = 45 min

Total time taken =  $45 + 36 = 81$  mins

Delay in time =  $81 - 72 = 9$  minutes.

**Q:10** The correct answer is **option 1** i.e **42 hrs**

In one hour,  $1/6$  of the cistern can be filled

In one hour, only  $1/7$  of the cistern can be filled due

to leak in its bottom

∴ In one hour  $1/6 - 1/7 = 1/42$  of the cistern is empty

∴ The whole cistern will be emptied in 42 hrs

So, this is it for today. We will meet again with another new topic. Till then, you can practice the questions again by downloading the PDF of Pipes and Cistern.