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Boat and Stream Questions for SSC and Railways Exams – Boat and Stream Quiz at Smartkeeda.

Boat and Stream Quiz 1

Directions: Kindly study the following Questions carefully and choose the right answer:

1. A boat takes 19 hours for travelling downstream from point A to Point B and coming back to a Point C midway between A and B. If the velocity of the stream is 4 kmph and the speed of the boat in still water is 12 kmph, what is the distance between A and B?

A. 160 km   B. 152 km   C. 200 km   D. 220 km

2. Speed of a boat in still water is 8 kmph and speed of stream is 1.5 kmph. A man rows to a place at a distance of 61.75 km and come back to starting point. The total time taken by him.

A. 6 hrs   B. 8 hrs   C. 16 hrs   D. 22 hrs

3. In stream running at 2 kmph, a motorboat goes 6 km upstream and back again to the starting point in 33 minutes. Find the speed of the motorboat in still water.

A. 8 kmph   B. 12 kmph   C. 18 kmph   D. 22 kmph

4. If a man rows at the rate of 5 kmph in still water and his rate against the current is 3.5 kmph. then the man's rate along the current is:

A. 5 kmph   B. 6 kmph   C. 6.5 kmph   D. 7.5 kmph

5. A man can row 18 kmph in still water. It takes him thrice as long to row up as to row down the river. Find the rate of stream.

A. 3 km/hr   B. 6 km/hr   C. 9 km/hr   D. 12 km/hr

6. A steamer takes 36 minutes less to travel 36 miles downstream than to travel the same distance upstream. If the speed of the steamer in still water is 6 miles per minute the speed of the stream (miles per minute) is:

A. 37 + 1   B. 37 – 1   C. 27 – 1   D. 37 – 3

7. A man's downstream speed is 7 kmph and speed of current is 1 kmph, the upstream speed of the man is–

A. 2 kmph   B. 3 kmph   C. 5 kmph   D. 7 kmph

8. A boat travel with a speed of 10 kmph in still water. If the speed of the stream is 3 kmph then find time taken by boat to travel 52 km downstream.

A. 2 hrs   B. 4 hrs   C. 6 hrs   D. 9 hrs

9. A man can row upstream 12 km and 30 km downstream each in 6 hrs. the velocity (in kmph) of the current is:

A. $\frac{7}{2}$ kmph   B. $\frac{5}{2}$ kmph   C. $\frac{1}{2}$ kmph   D. $\frac{3}{2}$ kmph

10. A man takes 3 hours 45 minutes to row a boat 22.5 km downstream of a river and 2 hours 30 minutes to cover a distance of 10 km up stream. Find the speed of the river current in km/hr.

A. 1 km/hr   B. 2 km/hr   C. 3 km/hr   D. 4 km/hr

Correct Answers:

1	2	3	4	5	6	7	8	9	10
B	C	D	C	C	B	C	B	D	A

Explanations:

1. Speed downstream = (12 + 4)km/hr = 16 km/hr;

Speed upstream = (12 – 4) km/hr = 8 km/hr.

Let the distance between A and B be x km, Then,

$$\frac{x}{16} + \frac{(x/2)}{8} = 19 \Leftrightarrow \frac{x}{16} + \frac{x}{16} = 19$$

$$\Leftrightarrow \frac{2x}{16} = 19 \Leftrightarrow x = 152 \text{ km.}$$

Hence, option B is correct.

2. Rate upstream = 8 – 1.5 = 6.5 kmph

Rate downstream = 8 + 1.5 = 9.5 kmph

Time taken to go upstream = $\frac{61.75}{6.5}$ = 9.5 hr.

Time taken to go downstream = $\frac{61.75}{9.5}$ = 6.5 hr.

Total time = 9.5 + 6.5 = 16 hrs.

Hence, option C is correct..

3. Let the speed of the motorboat in still water be x kmph. Then,

Speed downstream = (x + 2) kmph; Speed upstream = (x – 2) kmph.

$$\therefore \frac{6}{x+2} + \frac{6}{x-2} = \frac{33}{60} \Leftrightarrow 11x^2 - 240x - 44 = 0$$

$\Rightarrow 11x^2 - 242x + 2x - 44 = 0 \Leftrightarrow (x - 22)(11x + 2) = 0 \Leftrightarrow x = 22.$

Hence, speed of motorboat in still water = 22 kmph.

Hence, option D is correct.

4. Given,

Upstream rate = 3.5 kmph, Speed of a man in still water = 5 kmph

Let the downstream rate be x kmph, then

By the short trick approach, we get

Speed of the man (boat) in still water = $\frac{1}{2}$

[**DOWNSTREAM** rate **+ UPSTREAM** rate]

$\Rightarrow 5 = \dfrac{1}{2}(x + 3.5)$ or   x = 6.5 kmph

Hence, option C is correct.

5. To solve this question, we can apply a short trick approach;

$x\left(\dfrac{n-1}{n+1}\right)$km/hr

Given,
x = Person speed = 18 kmph
n = the no. of times of hours taken by the boat in the 2nd scenario (upstream) = 3
By the short trick approach, we get

$\Rightarrow 18\left(\dfrac{3-1}{3+1}\right) = \dfrac{18 \times 2}{4} = 9$ kmph.

Hence, option C is correct.

6. Let speed of the stream be x.
Rate downstream = 6 + x
Rate upstream = 6 − x

$\dfrac{36}{6-x} - \dfrac{36}{6+x} = 36.$

$\Rightarrow 6 + x - 6 + x = 36 - x^2$
$\Rightarrow 2x = 36 - x^2$
$\Rightarrow x^2 + 2x - 36 = 0$

By Sridharachara's formula, roots of quadratic eq. ax2 + bx +c = 0 will be $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Here, A = 1, b = 2 and c = − 36

Therefore x = $\dfrac{-2 \pm \sqrt{(2)^2 - 4 \times 1 \times (-36)}}{2 \times 1}$

$= \dfrac{-2 \pm \sqrt{148}}{2} = \dfrac{-2 \pm \sqrt{37}}{2} = \dfrac{2(-1) \pm \sqrt{37}}{2} = -1 \pm \sqrt{37} = \sqrt{37} - 1$

Hence, option B is correct.

7. Given,
Downstream rate = 7 kmph, Speed of the Current = 1 kmph
Let Upstream be x, then
By the short trick approach, we get

Speed of the current = $\dfrac{1}{2}$

[**DOWNSTREAM** rate **– UPSTREAM** rate]

$\Rightarrow 1 = \dfrac{1}{2}(7 - x) \Rightarrow 2 = 7 - x \quad OR \quad x = 5$ km/hr

Hence, option C is correct.

8. Downstream Speed of boat = 10 + 3 = 13 kmph

Time taken = $\dfrac{\text{Distance}}{\text{Speed}} = \dfrac{52}{13} = 4$ hrs.

Hence, option B is correct.

9. Given,

Downstream rate per hour = $\dfrac{30}{6}$ = 5 km/h

Upstream rate per hour = $\dfrac{12}{6}$ = 2 km/h

By the short trick approach, we get

Speed of the current = $\dfrac{1}{2}$

[**DOWNSTREAM** rate **– UPSTREAM** rate]

= $\dfrac{1}{2}(5 - 2) = \dfrac{3}{2}$ km/hr

Hence, option D is correct.

10. Given,

Downstream time = 3 h 45 mins = $\dfrac{15}{4}$ h

So, Speed of downstream = $\dfrac{22.5}{15/4} = \dfrac{22.5 \times 4}{15}$ = 6 km/hr

Upstream time = 2 h 30 mins = $\dfrac{5}{2}$ h

Now, Speed of upstream = $\dfrac{10}{5/2} = \dfrac{10 \times 2}{5}$ = 4 km/hr

By the short trick approach, we get

Speed of the current = $\dfrac{1}{2}$ [**DOWNSTREAM** rate **– UPSTREAM** rate]

$= \dfrac{1}{2} \times (6 - 4) = \dfrac{2}{2} = 1\text{km/hr}$

Hence, option A is correct.