Boat and Stream Questions for Bank Clerk Pre Exams.

Boat and Stream Quiz 4

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

1. A man can row 6 km/h in still water. If the speed of the current is 2 km/h, it takes 3 hrs more in upstream than in the downstream for the same distance. The distance is

A. 30 km B. 24 km C. 20 km D. 32 km E. None of these

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2. A man can row at a speed of 15/2 km/hr in still water. If he takes 4 times as long to row a distance upstream as to row the same distance downstream, then the speed of stream (in km/hr) is

A. 4 B. 3.75 C. 5 D. 4.5 E. None of these

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3. Two boats A and B start towards each other from two places, 150 km apart. Speed of the boat A and B in still water are 16 km/hr and 14 km/hr respectively. If A proceeds down and B up the stream, they will meet after.

A. 4.5 hours B. 4 hours C. 5 hours D. 6 hours E. None of these

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4. Speed of a boat is 25 km per hour in still water and the speed of the stream is 5 km per hour. If the boat takes 15 hrs to go to a place and come back, the distance of the place is

A. 180 km B. 160 m C. 164 km D. 220 km E. None of these

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5. The speed of a boat along the stream is 8 km/h and against the stream is 6 km/hr. The time taken by the boat to sail 28 km in still water is

A. 2 hrs B. 3 hrs C. 4 hrs D. 8 hrs E. None of these

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6. In stream running at 4 kmph, a motorboat goes 6 km upstream and back again to the starting point in 2 hours. Find the speed of the motorboat in still water.

A. 12 km/h B. 8 km/h C. 11 km/h D. 4 km/h E. None of these

7. A swimmer swims from a point A against a current for 10 minutes before he reaches point C and then swims back along the current for next 10 minutes and comes to point B. If the distance between A and B is 200 metres, find the speed of the current (in kmph) :

A. 0.6 B. 0.5 C. 0.4 D. 0.9 E. None of these

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8. A, B and C are situated at the bank of river which is flowing at a constant rate. B is at an equal distance with A and C. A swimmer Avinash takes 10 h to swim from A to B and B to A .Also, he takes 4 h to swim from A to C. What is the ratio of speed of Avinash is still water and speed of stream?

A.5 : 3 B. 3 : 5 C. 2 : 5 D. 1 : 2 E. None of these

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9. At his usual rowing speed, kapil can travel 12 miles downstream in a certain riven in 6 h less than he takes to travel the same distance upstream. But, if he could double his usual rowing speed for his 24 mile round trip, the downstream 12 miles would then take only 1 h less than the upstream 12 miles, what is the speed of the current in mile/h?

A. $2\frac{2}{3}$ mile/h B. $3\frac{2}{3}$ mile/h C. $5\frac{2}{3}$ mile/h D. $7\frac{2}{3}$ mile/h E. None of these

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10. The speed of a boat in still water is 7 km/hr and the speed of the stream is 3 km/hr. A man rows to a place at a distance of 60 km and comes back to the starting point. Find the total time taken by him?

A. 17 hrs B. 20 hrs C. 21 hrs D. 15 hrs E. None of these

Correct Answers:

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

Explanations:

1. Let the required distance be x km. As per the question, $Time_{upstream} - Time_{downstream} = 3$

$\Rightarrow \frac{Distance}{Speed_{upstream}} - \frac{Distance}{Speed_{downstream}} = 3$

$\therefore \frac{x}{6-2} - \frac{x}{6+2} = 3$

$\Rightarrow \frac{x}{4} - \frac{x}{8} = 3$

$\Rightarrow \frac{2x - x}{8} = 3$

$\Rightarrow x = 3 \times 8 = 24$ km.

Hence, option B is correct.

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2. Let the speed of stream be x kmph

$\therefore$ Rate upstream $= \frac{15}{2} - x$

And rate downstream $= \frac{15}{2} + x$

Let's also assume the time taken in downstream and upstream is 1 hr and 4 hrs respectively. We know that,

Distance = Speed × Time

$\therefore \left(\frac{15}{2} + x\right) \times 1 = \left(\frac{15}{2} - x\right) \times 4$

$\Rightarrow (15 + 2x) = (60 - 8x) \Rightarrow 10x = 45$

$\therefore x = \frac{45}{10} = \frac{9}{2} = 4.5$ kmph

Hence, the option D is correct.

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3. Let the speed of the stream be x kmph and both the boats meet after t hours.

According to the question,

Distance covered while going downstream + Distance covered while going upstream = Total Distance

$\Rightarrow (16 + x)\, t + (14 - x)\, t = 150$

$\Rightarrow$ 16t + 14t = 150
$\Rightarrow$ 30t = 150
$\Rightarrow$ t = 5 hrs
Hence, option C is correct.

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4. Let the required distance be x km, then As per the question, $Time_{downstream} + Time_{upstream}$ = Total time

$\Rightarrow \frac{x}{25+5} + \frac{x}{25-5} = 15$

$\Rightarrow \frac{x}{30} + \frac{x}{20} = 15$

$\Rightarrow \frac{2x+3x}{60} = 15$

$\Rightarrow$ 5x = 60 x 15 $\Rightarrow$ x = 180 km
Hence, option A is correct.

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5. Given, Speed downstream = 8 km/h Speed upstream = 6 km/h $\therefore$ Speed of boat in still water

$= \frac{\text{Speed downstream + Speed Upstream}}{2}$

$= \frac{8+6}{2} = \frac{14}{2} = 7$ km/hr

$\therefore$ Reqd. time $= \frac{\text{Distance}}{\text{Speed of boat}} = \frac{28}{7} = 4$ hrs
Hence, option C is correct.

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6. Let the speed of the motorboat in still water be x kmph. Then,
Speed downstream = (x + 4) kmph; Speed upstream = (x – 4) kmph.

$\therefore \frac{6}{x+4} + \frac{6}{x-4} = 2$

Now by taking option B

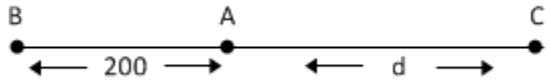
$\Rightarrow$ Putting x = 8, we get

$\frac{6}{12} + \frac{6}{4} = 2$

$\frac{1}{2} + \frac{3}{2} = 2$

2 = 2
Hence, speed of motorboat in still water = 8 kmph.
Hence Option B is correct

7. The distance covered against the current = AC = d metres
Given AB = 200 metres
∴ BC = (200 + d) metres



Let the speed of the man be u metres per minute and that of the current be v metres per minute
∴ Rate upstream = (u – v) m/min and Rate downstream = (u + v) m/min

Now, $\frac{d}{u - v} = 10$ ...(i)

⇒ d = 10 (u – v)

Again, $\frac{200 + d}{u + v} = 10$ ...(ii)

Putting the value of d in eq (ii)
200 + 10(u – v) = 10u + 10v
⇒ 200u + 10u – 10v = 10u + 10v
⇒ 20v = 200
⇒ v = 10 m/min
∴ speed of the current
$= \frac{10}{1000} \times 60$ kmph = 0.6 kmph
Hence, option A is correct.

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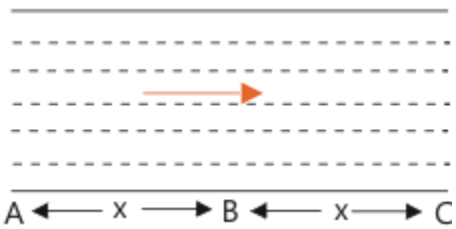
8. Let speed of Avinash in still water = a km/h
and speed of stream = b km/h



Let AB = BC = x km
From first condition
$\frac{x}{a + b} + \frac{x}{a - b} = 10$ .. (i)

From second condition,
$\frac{2x}{a + b} = 4$

$\Rightarrow \frac{x}{a+b} = 2$ ..(ii)

From Eqn. (i) and (ii) , we get

$2 + \frac{x}{a-b} = 10$

$\Rightarrow \frac{x}{a-b} = 8$ ... (iii)

From Eqn. (ii) and (iii), we get,

$\frac{a+b}{a-b} = \frac{8}{2} = 4$

$\Rightarrow a + b = 4a - 4b$

$\Rightarrow 3a = 5b$

$\Rightarrow a : b = 5 : 3$

Hence, option A is correct.

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9. Let speed of Kapil in still water = x

and speed of the current = y

$\therefore$ Speed upstream = (x – y)

Speed downstream = (x + y)

According to the question,

$\frac{12}{(x-y)} - \frac{12}{(x+y)} = 6$

$\Rightarrow 6(x^2 - y^2) = 24y$

$\Rightarrow x^2 - y^2 = 4y$

$\Rightarrow x^2 = 4y + y^2$ ...(i)

Again, $\frac{12}{(2x-y)} - \frac{12}{(2x+y)} = 1$

$\Rightarrow 6x^2 - y^2 = 24y$

$\Rightarrow x^2 = \frac{24y + y^2}{4}$ ...(ii)

From Eqs. (i) and (ii) , we get

$4y + y^2 = \frac{24y + y^2}{4}$

$\Rightarrow 16y + 4y^2 = 24y + y^2$

$\Rightarrow 3y^2 = 8y$

$\Rightarrow y = \frac{8}{3} = 2\frac{2}{3}$ mile/h

Hence, option A is correct.

10. Speed of boat = 7 km/h, speed of stream = 3 km/h

$$\text{Total time} = \frac{\text{Distance}}{\text{Downstream speed}} + \frac{\text{Distance}}{\text{Upstream speed}}$$

$$= \frac{60}{(7+3)} + \frac{60}{(7-3)}$$

$$= \frac{60}{10} + \frac{60}{4}$$

= 6 + 15 = 21 hours
Hence, option C is correct.