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Boats and Streams Questions for SBI PO Pre, IBPS PO Pre, SBI Clerk Mains, IBPS Clerk Mains & LIC AAO Exams.

Direction: Read the following questions carefully and choose the right answer.

1. Ratio between speed of boat in still water to speed of stream is 5 : 2. If 224 km is travelled by downstream in 4 hours then find the difference between speed of boat in still water and speed of stream?

A. 24 km/hr B. 22 km/hr C. 28 km/hr D. 26 km/hr E. 30 km/hr

2. If the upstream speed of a boat is 50% less than the downstream speed of the boat and if a object is thrown in the river it covers 100m in 50 sec, then how much distance boat can cover in still water in 5 hours?

A. 900 km B. 100 km C. 120 km D. 108 km E. 105 km

3. A steamer can go 12 km in still water in 25 minutes. One day, it went 11.25 km upstream and returned the same distance in downstream. If the difference between the time taken to travel upstream and downstream was 12.5 minutes, then what was the speed of stream in km per hour?

A. 7.2 B. 5.4 C. 6.3 D. 4.5 E. None of these

4. The ratio of speed of A and B in still water is 3 : 2. A and B start from the same point in the river, A goes upstream and B goes downstream. After 3 hours the stream stops flowing and A starts rowing in the opposite direction to meet B. How much time after the stream stops flowing does A meet B?

A. 16 hrs B. 15 hrs C. 12 hrs D. 18 hrs E. None of these

5. A boat goes a certain distance upstream and comes back downstream to the starting point in 144 min. If the speed of the boat in still water becomes 66.67% of the original, time taken for the same journey will be 224 min. What is the ratio of the speed of boat in still water and speed of current?

A. 7 : 1 B. 6 : 1 C. 5 : 3 D. 7 : 2 E. None of these

6. The speed of current is 5 km/h. What will be the respective downstream speed and upstream speed of a boy rowing a boat, if one third of the distance covered going downstream in a certain time is equal to the distance covered going upstream in the same time.

A. 15 kmph, 5 kmph B. 20 kmph, 10kmph C. 18 kmph, 8 kmph D. 24 kmph, 14 kmph E. None of these

7. **There are 3 points P, Q and R in a straight line, such that point Q is equidistant from points P and R. A man can swim from point P to R downstream in 24 hours and from Q to P upstream in 16 hours. Find the ratio of speed of man in still water to speed of stream?**

A. 5 : 1 B. 6 : 1 C. 5 : 3 D. 7 : 1 E. None of these

8. **Rohit can row a boat 65Km upstream and 130Km downstream in 23 hours, whereas he can swim 45Km upstream and 104Km downstream in 17 hours. Find the speed of boat in still water and the speed of stream.**

A. 4km/h, 9km/h B. 8km/h, 5km/h C. 9km/h, 4km/h D. 5km/h, 8km/h E. 10km/h, 3km/h

9. **If the ratio of the speed of a boat in upstream and the speed of the stream is 8 : 1. If the boat can travel 500 km downstream in 20 hours then find the total distance travelled by the boat in still water in the same time?**

A. 425 km B. 459 km C. 441 km D. 450 km E. None of these

10. **The ratio of the time taken by a boat to go a certain distance upstream and return downstream halfway of the same distance is 18 : 5. If the speed of stream is 4km/h what is the distance covered by the boat in 6 hours in downstream and 8 hours in upstream?**

A. 192 km B. 188 km C. 208 km D. 175 km E. None of these

CORRECT ANSWERS:

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

Explanations:

1. Let the speed of boat in still water and speed of stream be 5x and 2x respectively.

According to the question,

$\frac{224}{4} = 5x + 2x$

$x = \frac{224}{7} \times 4$

$x = \frac{32}{4} = 8$

Required difference = 5x – 2x = 3x

3x = 24 km/hr

Hence, option A is correct.

2. Let the speed of boat in still water be s m/sec

As the object covers 100m in 50 sec , so the distance travelled by the object will be with the help of the speed of the stream only.

Speed of stream $= \frac{100}{50} = 2$ m/s

Given that,

(s – 2) = (s + 2) – 50 (s + 2)/100

(s – 2) = (s + 2)(1 – 1/2)

s = 6 m/sec

$s = \frac{6 \times 18}{5} = \frac{108}{5}$ km/hr

Distance covered by the boat in still water in 5 hours

$= 108 \times \frac{5}{5} = 108$ km

Hence, option D is correct.

3.

In still water, the speed of steamer = $\frac{12000}{25}$

= 480 meter per minute = 8 meters per second

Let the speed of stream = v m/sec

In upstream, the speed of steamer = (8 – v) m/sec

In downstream, the speed of steamer = (8 + v) m/sec

According to the question,

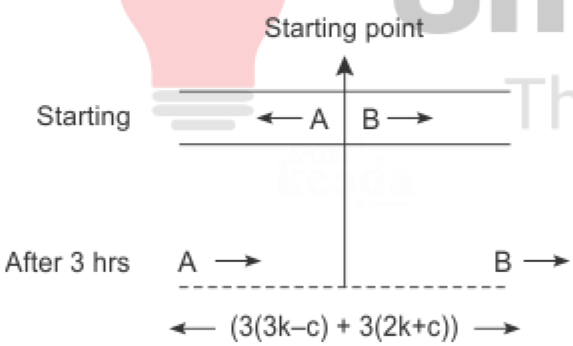
$$\frac{11250}{8 - v} - \frac{11250}{8 + v} = 12.5 \times 60 = 750 \text{ seconds}$$

By solving, v = 2 meters per second

$$= \frac{2 \times 18}{5} = 7.2 \text{ km per hour}$$

Hence, option A is correct.

4.



Let the speed of current be = c km/hr

Let the speeds of A and B in still water be 3k km/hr and 2k km/hr

Upstream speed of A = (3k – c) km/hr

Downstream speed of B = (2k + c) km/hr

Distance between A and B after 3 hrs = [3 (3k – c) + 3 (2k + c)] km = (9k – 3c + 6k + 3c) km = 15k km

After stream becomes stationary

Relative speed when both go in same direction = (3k – 2k) km/hr = k km/hr

Time after which they meet = 15 k/ k = 15 hrs

Hence, option B is correct.

5. Let the distance be D and Speed of boat in still water be 3B and that of current be C

$$\frac{D}{3B + C} + \frac{D}{3B - C} = 144 \text{ ....eq.(i)}$$

When the speed of the boat becomes 66.67% → new boat speed = 2B

$$\frac{D}{2B + C} + \frac{D}{2B - C} = 224 \text{ ....eq.(ii)}$$

Dividing eq. (i) by eq. (ii)

$$\frac{\frac{6B}{(3B + C)\,(3B - C)}}{\frac{4B}{(2B + C)\,(2B - C)}} = \frac{144}{224}$$

$$\frac{6 \times (4B^2 - C^2)}{4 \times (9B^2 - C^2)} = \frac{9}{14}$$

$$\frac{4B^2 - C^2}{9B^2 - C^2} = \frac{3}{7}$$

$$B^2 = 4C^2 \rightarrow \frac{B}{C} = \frac{2}{1}$$

$$\frac{3B}{C} = \frac{6}{1}$$

The ratio of speed of boat and current in 6 : 1
Hence, option B is correct.

6. Let the speed of boy in still water be X km/h
And the speed of current is given = 5 km/h

Downstream speed = (X + 5) km/h
Upstream speed = (X – 5) km/h

Let time be ‘t’ hours.

$$\Rightarrow \frac{(X + 5)\,t}{3} = (X - 5)\,t$$

$\Rightarrow X + 5 = 3X - 15$
$\Rightarrow 2X = 20$
$\Rightarrow X = 10$ km/h
Downstream speed = 10 + 5 = 15 km/h
Upstream speed = 10 – 5 = 5 km/h
Hence, option A is correct.

7. Let speed of man in still water = x km/h

Speed of current = y km/h

Downstream speed = (x + y) km/h
Upstream speed = (x – y) km/h
Let PQ = QR = A and PR = 2A

So,

$$\frac{2A}{x+y} = 24 \text{ and } \frac{A}{x-y} = 16$$

By dividing both equations-

$$\Rightarrow \frac{2A\,(x-y)}{A\,(x+y)} = \frac{24}{16}$$

$$\Rightarrow 4x - 4y = 3x + 3y$$

$$\Rightarrow \frac{x}{y} = \frac{7}{1}$$

Required ratio = Speed of man in still water : Speed of current ⇒ 7 : 1

Hence, option D is correct.

8. Upstream, U = Speed of boat – speed of stream

Downstream, D = Speed of boat + speed of stream

$$\frac{65}{U} + \frac{130}{D} = 23$$

$$\frac{45}{U} + \frac{104}{D} = 17$$

On solving the above two equations, we will get

U = Speed of boat – speed of stream = 5
D = Speed of boat + speed of stream = 13

Thus, Speed of boat = 9 and speed of stream = 4

Hence, option C is correct.

9. Let the speed of boat in upstream = 8x km/hr

And the speed of the stream = x km/hr

Speed of boat in downstream = $\frac{500}{20}$ = 25 km/hr

Let the speed of boat in still water = p km/hr
Then, p + x = 25 km/hr **..........(i)**
P – x = 8x , p = 9x **...........(ii)**

Put the value of p in the equation (i)
10x = 25, x = 2.5

From the equation (ii) speed of boat in still water = 9x = 9 × 2.5 = 22.5 km/hr
The total distance travelled by the boat in still water in 20 hours = 450 km

Hence, option D is correct.

10. Let the speed of boat = b and current = c

Speed downstream = b + c, Speed upstream = b – c
Let the distance boat goes upstream = 2d and returns downstream is d

$$\frac{\text{S down}}{\text{S up}} = \frac{d}{\text{T down}} \times \frac{\text{T up}}{2d}$$

$$= \left(\frac{d}{2d}\right)\left(\frac{\text{T down}}{\text{T up}}\right)$$

$$= \frac{1}{2} \times \frac{18}{5} = \frac{9}{5}$$

$$\frac{\text{S down}}{\text{S up}} = \frac{9}{5}$$

S down = b + c, S up = b – c

$$\frac{(b+c)}{(b-c)} = \frac{9}{5}$$

$$\frac{b}{c} = \frac{14}{4}$$

c = 4 km/h so, b = 14 km/h
Speed down = 14 + 4 = 18 km/h, Speed up = 14 – 4 = 10 km/h
Distance covered = 18 × 6 + 10 × 8 = 188 km
Hence, option B is correct.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