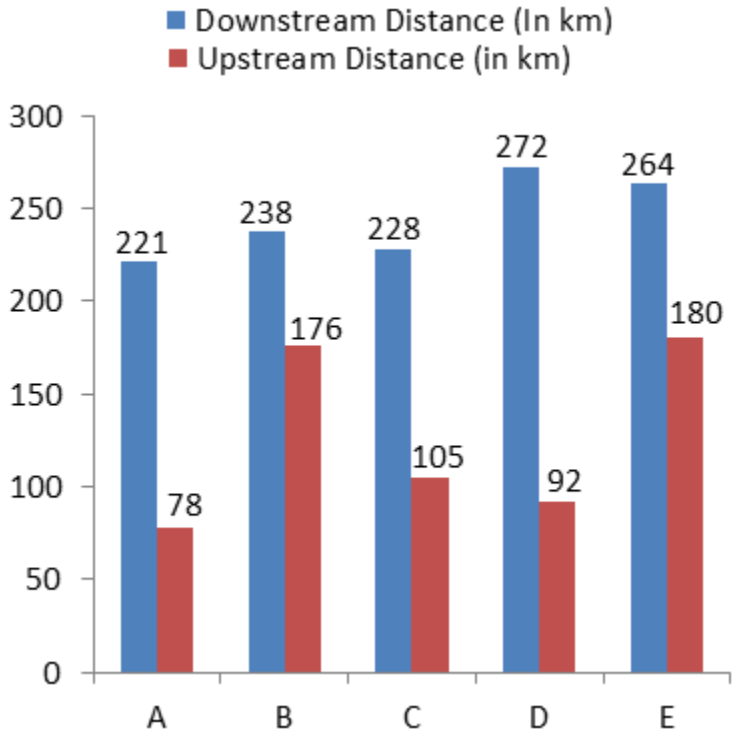
Date Interpretation Mixed Chart Questions Quiz for SBI PO Pre, IBPS PO Pre, SBI Clerk Mains and IBPS Clerk Mains Exams.

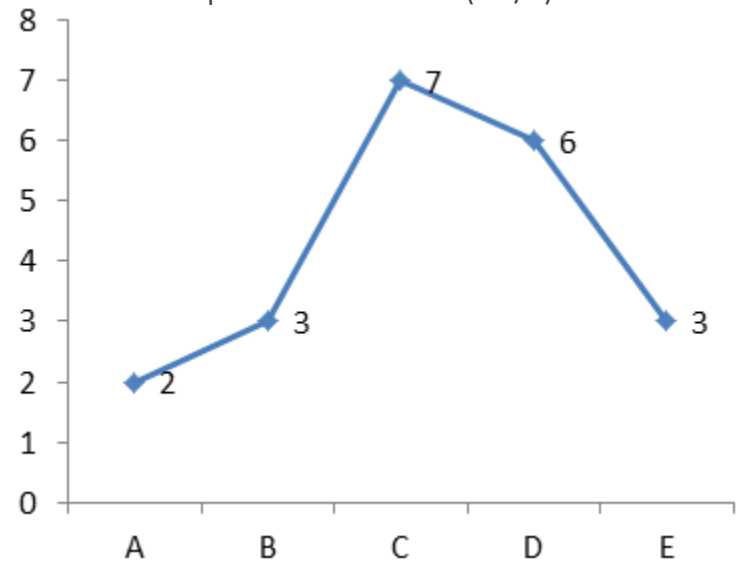
DI Mixed Chart Quiz 46

Directions : Study the following bar and line chart carefully and answer the questions given below.

Bar chart given below shows downstream distance and upstream distance(in km) travelled by 5 different boats and the line chart shows the speed of the streams in which the boat flows.



Speed of the Stream (km/h)



1. Downstream speed for E and upstream speed of B is same and the difference between the time taken by B going upstream and time taken by E going downstream is 8 hrs. Find the total time taken by E and B going 187 km downstream?

A. 28 hrs B. 30 hrs C. 25 hrs D. 22 hrs E. 27 hrs

2. If the time taken by C to complete a distance of 133 km downstream and time taken by A to complete a distance of 65 km upstream is 7 hrs and 5 hrs respectively. Then find the ratio of the time taken by C while going upstream and the time taken by A while going downstream?

A. 12 : 13 B. 13 : 12 C. 23 : 25 D. 13 : 21 E. None of these

3. The total time taken by D in travelling downstream and upstream both is 40 hrs. Find the time taken by boat F travelling 220 kms upstream , if the ratio of speed of the boat in still water of D and F is 1:3 and the time taken by F in going 360 kms downstream is 9 hrs?

A. 12 hrs B. 9 hrs C. 11 hrs D. 13 hrs E. None of these

4. The speed of Boat B downstream is 17km/hr. Boat B while travelling back to the shore downstream was struck by a rock due to which water starts to flow into the boat at the rate of 30 litres per hour. If the boat can survive up to 270 litres , find the minimum percentage increase in speed boat B requires in order to reach the shore , if the distance remaining at the moment rock hit the boat was 180 kms?

A. 150/7% B. 153/7% C. 37% D. 53% E. None of these

5. The speed of Boat E going downstream is 11km/hr. Boat E while travelling back to the shore downstream was struck by a rock due to which water starts to flow into the boat at the rate of 50 litres per hour. If the boat can survive up to 1000 litres, find the minimum percentage of increase in speed boat E requires in order to reach the shore , if the distance remaining at the moment rock hit the boat was 240 kms?

A. 8.33% B. 9.5% C. 12.5% D. 12.33% E. None of these

Correct Answers:

1	2	3	4	5
A	E	C	A	C

Explanations:

1. Distance covered by E in downstream D(dE) = 264 km

Speed of the stream of E= 3 km/h

Downstream speed of E = upstream speed of B

S(dE) = S(uB)

$$\frac{264}{t(dE)} = \frac{176}{t(uB)}$$

$$\frac{t(uB)}{t(dE)} = \frac{2}{3}$$

Difference = 8 hrs

Hence 3x – 2x = 8, x = 8 hrs

Hence t(uB) = 16 hrs , t(dE) = 24 hrs

So total time by E and B going 187 km downstream,

$$t(dE)+t(dB) = \frac{187}{S(dE)} + \frac{187}{S(dB)} \text{ .....(i)}$$

$$S(dE) = \frac{264}{t(dE)} = \frac{264}{24} = 11 \text{ km/h}$$

Now S(dE) = S(uB)

So S(uB) = 11 km/h

$$\text{Speed (B)} = \frac{[S(dB) - S(uB)]}{2}$$

$$3 = \frac{[S(dB) - 11]}{2}$$

S(dB) = 17 km/h
Putting all values in eq 1
t(dE)+t(dB) = 17+11 = 28 hrs

Hence, option A is correct.

2. Distance covered by C upstream = 105 km

Upstream speed of C = S(uC)

Downstream Distance covered by A = 221 km

$t(uC) : t(dA) = \frac{105}{S(uC)} : \frac{221}{S(dA)}$ .....(i)

$t(dC) = \frac{133}{S(dC)}$

$7 = \frac{133}{S(dC)}$, $S(dC) = \frac{133}{7} = 19$ km/h

$S(C) = \frac{[S(dC) - S(uC)]}{2}$

$7 \times 2 = 19 - S(uC)$

$S(uC) = 5$ km/h

$t(uA) = \frac{65}{S(uA)}$, $S(uA) = \frac{65}{5} = 13$ km/h

$S(A) = \frac{S(dA) - S(uA)}{2}$

$2 \times 2 = S(dA) - 13$

$S(dA) = 17$ km/h

Put all values in eq1

$t(uC):t(dA) = \frac{105}{5} : \frac{221}{17} = 21 : 13$

Hence, option E is correct.

3.

$t(uF) = \frac{220}{S(uF)}$ .....(i)

$t(dD) + t(uD) = 40$ hrs

$\frac{272}{S(dD)} + \frac{92}{S(uD)} = 40$

[272/(boat speed in still water + stream speed)] + [92/(boat speed in still water – stream speed) = 40

$\frac{272}{B + 6} + \frac{92}{B - 6} = 40$

Speed of boat D in still water B(D) = 10 hrs

B(D) : B(F) = 1 : 3

$\frac{10}{B(F)} = \frac{1}{3}$

B(F) = 30 km/h

So speed of boat F in still water = 30 km/h

$t(dF) = \frac{360}{B(F) + S(F)} = 9$

putting B(F) = 30 km/h

S(F) = 10 km/h

Stream speed of F = 10 km/h

So Upstream speed of F, S (uF) = B(F) – S(F) = 30 – 10 = 20 km/h

Putting this in eq1

$t(uF) = \frac{220}{20} = 11$ hrs

Hence, option C is correct.

4.

time = $\frac{270}{30}$ = 9 hrs

That means boat can survive up to 9 hrs.

Speed = $\frac{180}{9}$ = 20 km/h

Speed should be 20 km/h to survive
But the speed of B going downstream,
S(dB)=17 km/h
S(dB) = B+S
17= B+ 3
B= 14 km/h
Hence boat B's Speed = 14 km/h
Minimum speed should be 20 km/h to survive.
Stream speed is 3 km/h which con not be changed
So boat B's speed should be 14+3 = 17 km/h , to reach 20 km/h

Hence, reqd. % = $\frac{3}{14} \times 100 = \frac{150}{7}$ %

Hence, option A is correct.

5.

time = $\frac{1000}{50}$ = 20 hrs

That means boat can survive up to 20 hrs.

Speed = $\frac{240}{20}$ = 12 km/h

Speed should be 20 km/h to survive
But the speed of E going downstream,
S(dE)=11 km/h
S(dE) = B+S
11= B+ 3 (Speed of stream for boat E = 3km/h)
B= 8 km/h
Hence boat E's Speed = 8 km/h
Minimum speed should be 12 km/h to survive.
Stream speed is 3 km/h which con not be changed
So boat E's speed should be 8+1 = 9 km/h , to reach 12 km/h

Hence, reqd. % = $\frac{1}{8} \times 100 = \frac{25}{2}$ % = 12.5%

Hence, option C is correct.