Quiz Date: 26th May 2020

Directions (1-5): In an exhibition of bikes there were three companies HONDA, PULSAR and HERO who introduced their models in the exhibition and it is found at the last of the exhibition that total 300 customers have visited exhibition. 50% customers purchased HONDA; 55% customers purchased HERO; 45% customers purchased PULSAR. 20% of customers who purchased HONDA also purchased other two brands. Customers who purchased any of two brands are 95. Customers of only HONDA are 20 more than that of only PULSAR. Customers who purchased only HONDA and PULSAR are 40.

Q1. How many of them did not purchase any of the three bikes?
(a) 15
(b) 20
(c) 05
(d) 10
(e) None of these

Q2. How many of them purchased only one company bikes?
(a) 175
(b) 160
(c) 165
(d) 170
(e) None of these

Q3. How many of them purchased at least two companies bikes?
(a) 125
(b) 105
(c) 95
(d) 130
(e) None of these

Q4. How many of them didn't purchase only PULSAR bike?
(a) 160
(b) 105
(c) 260
(d) 265
(e) None of these

Q5. What is the total number of bikes which have been sold?
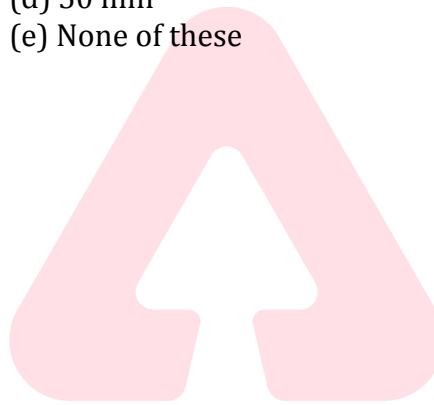(a) 450
(b) 445
(c) 455
(d) 305
(5) None of these

Directions (6-10) : A person organizes a trip of 4 days to 4 different cities. They travelled everywhere together in car. They noticed that, each day they travelled with different average speed. They started their journey from city P, and at first day they reached city Q in 6 hours. Next day they covered the distance of 300 km from city Q to city R. Third day their average speed 40 km/hr for whole journey and reached city S from city R. Difference between distance covered on third day and fourth day is 40 km. They drive for 1 more hour on 1st day than that on 3rd day. On the fourth day while returning from city S to city P, they drive for 1 hour lesser than they drive on second day. Ratio of speed of 1st day to that of second day is 4 : 5. Least distance covered by them is on 3rd day. Their average speed is 5 km/hr faster on last day than on second day.
Answer the following questions on the basis of information above.

Q6. If they drive with 15 km/hr higher than actual their actual average speed of 1st day, find the time reduction on Ist day to go to Q from P.
(a) 1 hr 20 min
(b) 1 hr 30 min
(c) 1 hr 12 min
(d) 50 min
(e) None of these

Q7. What is their average speed for both IInd and IIIrd day combined?
(a) $55\frac{5}{9}$ km/hr
(b) 66 km/hr
(c) 45km/hr
(d) 56 km/hr
(e) $48\frac{8}{9}$ km/hr

Q8. If they drive with half of average speed on day 4 and on with double speed on day 3, then find the difference in time taken on day 3 and day 4 to reach their respective cities.
(a) 1 hour
(b) 1.5 hours
(c) 2 ⅔ hours
(d) 3.5 hours
(e) 4.5 hours

Q9. If city S lies at some point between city Q and R then in how much time they could travel from city S to Q travelling with speed of 20 km/hr? Assume that all three cities lie on a straight road.
(a) 20 hours
(b) 5 hours
(c) 4 hours
(d) 10 hours
(e) can't be determined

Q10. Average speed on 1st day is what % more than the average speed on 3rd day ?
(a) 33 ⅓%
(b) 40%
(c) 50%
(d) 60%
(e) None of these

Solutions

S (1-5):
Total customer purchased HONDA = $\frac{50}{100} \times 300 = 150$

Total purchased HERO = $\frac{55}{100} \times 300 = 165$

Total purchased PULSAR = $\frac{45}{100} \times 300 = 135$

Customer purchased all three companies bikes = $\frac{20 \times 150}{100} = 30$

Purchased HONDA and PULSAR = 40
Two bikes purchased by customers ⇒ 95
Let only Pulsar purchased by customer = x
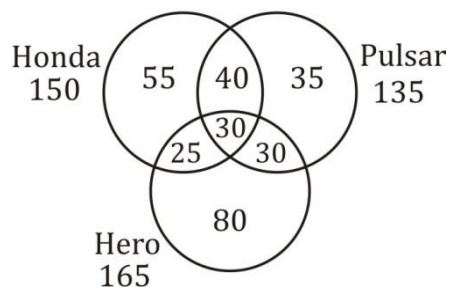So only HONDA = x + 20
Now,
Total, only Pulsar and only Honda purchased by
x + x + 20 = 150 + 135 – 100 – 95 = 90
x = 35

Honda 150, Pulsar 135, Hero 165 Venn diagram: 55, 40, 35, 30, 25, 30, 80
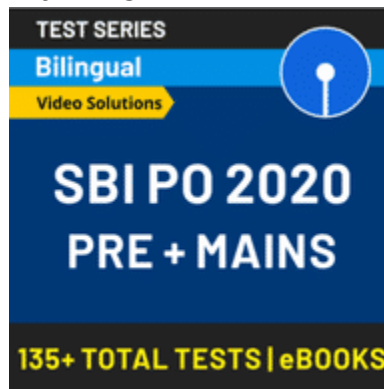
S1. Ans.(c)
Sol.
300 – 295 = 05

S2. Ans.(d)
Sol.
= 55 + 35 + 80 = 170

S3. Ans.(a)
Sol.
At least 2 bikes = 25 + 30 + 30 + 40 = 125

S4. Ans.(d)
Sol.
Required number = 300 − 35 = 265

S5. Ans.(a)
Sol.
Total bikes sold = (55 + 35 + 80)×1 + (25 + 30 + 40)×2 + 30×3
= 170 + 190 + 90
= 450

S (6-10)
To solve this easily, make a chart like this

Day		Distance	T	Speed
1	P→Q		6	
2	Q→R	300 km		
3	R→S			40 km/hr
4	S→P			

We have write all these things that are directly given.
It is given, that they drive 1 more hour on 1st day than 3rd day.
Therefore they drive for 5 hours on third day and hence distance between city R and city S
40 × 5 = 200 km
Let their average speed on these 4 days be x, y, 40 & (y + 5) km/hr respectively
But $\frac{x}{y} : \frac{4}{5} \Rightarrow$ x = $\frac{4}{5}$y
Hence their speed are $\frac{4}{5}$y y, 40, y+5
[because their average speed is 5 km/hr faster on day 4 then day second)

Also, difference between distance covered on 3rd day and 4th day is 40 km, and they travelled least on 3rd day.

Therefore distance covered on 4th day is 240 km.

Using the information, they drive 1 hour lesser on 4th day than second day.

$\frac{300}{y} - \frac{240}{y+5} = 1$

$\Rightarrow \frac{300y + 1500 - 240y}{y(y+5)} = 1$

$\Rightarrow y^2 + 5y - 60y - 1500 = 0$

$\Rightarrow y^2 - 55y - 1500 = 0$

$(y - 75)(y + 20) = 0$

$y = 75$, hence $x = \frac{4}{5} \times 75 = 60$

Hence table will be like this

		Distance	**Time**	**Speed**
1	P-Q	360	6	60
2	Q-R	300	4	75
3	R-S	200	5	40
4	S-P	240	3	80

S6. Ans.(c)
Sol.
Actual time taken = 6 hours
When their speed becomes 75 km/hr [60 + 15]
Time taken = $\frac{360}{75}$ = 4.8 hours.
Reduction in time = 1.2 hours i.e. 1 hour 12 minutes

S7. Ans.(a)
Sol.
Distance covered on IInd day = 300 km
Distance covered on IIIrd day = 200 km
Average speed = $\frac{\text{Total distance}}{\text{Total time}}$
= $\frac{500}{9}$ = $55\frac{5}{9}$ km/hr

S8. Ans.(d)
Sol.
Time taken on day 3 = $\frac{200}{2 \times 40}$ = 2.5 hours
Time taken on day4 = $\frac{240}{40}$ = 6 hours
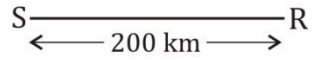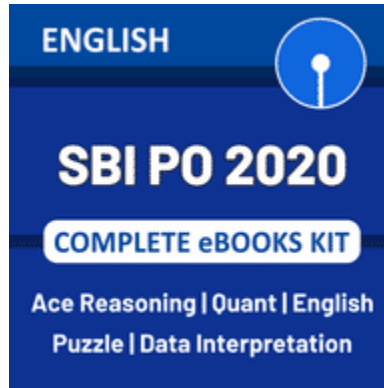Required difference = 3.5 hours.

S9. Ans.(b)
Sol.

Q————————R
  ←—— 300 km ——→

and

S———————R
←—— 200 km ——→

Therefore S lies at a distance of 100 km from Q.

Required time = $\frac{100}{20}$ = 5 hrs.

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S10. Ans.(c)
Sol.

Required answer = $\frac{60-40}{40} \times 100$ = 50%

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