

Quiz Date: 17<sup>th</sup> March 2020

**Directions (1-5):** The following table shows the average speeds of five different trains during six days of a week. Study the table carefully to answer the following questions.

Note: In the table, some data are missing, find them if required in any question and then proceed.

Trains	Speeds (in km/hr) of trains on different days					
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Duranto Express	72	80	–	64	54	–
Shatabdi	88	–	80	84	72	90
Vande Bharat	54	70	72	–	64	60
Rajdhani	–	120	95	–	90	110
Shiv Ganga Exp	72	80	84	75	–	–

Q1. If the average speed of Duranto Express on Saturday was 20% more than that of Wednesday, then what is the average speed of Duranto Express on Saturday if average of values of speeds over all the six days is 67?

- (a) 74 km/hr
- (b) 77 km/hr
- (c) 72 km/hr
- (d) 70 km/hr
- (e) 75 km/hr

Q2. If the average of values of speeds of Vande Bharat during all the six days is 25% less than value of average speed of Shatabdi train on Saturday, then speed of Vande Bharat on Thursday is what percent of speed of Rajdhani on Tuesday (approximately)?

- (a) 73%
- (b) 68%
- (c) 71%
- (d) 74%
- (e) 65%

Q3. Rajdhani express runs 150 km more on Monday than that on Thursday and time taken by the train on Monday and Thursday are 5 hours and 4 hours respectively. If average speed of this train on Monday is 15 km/hr more than that on Thursday, then find the average of distance covered by the train on Monday and Thursday together.

- (a) 365 km
- (b) 357 km
- (c) 370 km
- (d) 375 km
- (e) 380 km

Q4. Shatabdi Express covers total distance of 3400 km during all the six days in total time 40 hours. Speed of Shatabdi on Monday is approximately what percent more or less than average speed of the same train during all the six days together?

- (a) 4% less
- (b) 4% more
- (c) 2% more
- (d) 2% less
- (e) 6% more

Q5. If the ratio of average of speed of Shiv Ganga Exp express on Saturday and Friday is 5: 3, then the average speed of Shiv Ganga Exp on Saturday is approximately what percent more than average speed of Shiv Ganga Exp on Friday?

- (a)  $66\frac{2}{3}\%$
- (b)  $33\frac{2}{3}\%$
- (c)  $77\frac{2}{3}\%$
- (d)  $55\frac{2}{3}\%$
- (e) 72%

**Directions (6-10):** The given table show the S.I. and C.I. rate per annum given by five lenders.

Lenders	S.I. rate	C.I. rate
A	12%	15%
B	-	20%
C	10%	-
D	-	20%
E	25%	-

**Note:** Some values are missing, you must calculate these values according to question.

Q6. Lender A, lends some amount at S.I. for 3 years and another amount, which is 1500 more than the previous one, at C.I. for 2 years. Both sum earns equal amount. Find the amount lends at C.I.

- (a) 12900
- (b) 13500
- (c) 15000
- (d) 14400
- (e) 11500

Q7. Lender C lends a sum for 2 years at S.I. then after 2 year he re-lend the total amount for 2 years at C.I. and earn a total profit which is 45.2% of sum invest by him in S.I. Find the rate of C.I.

- (a) 10%
- (b) 11%
- (c) 12%

- (d) 20%  
(e) 15%

Q8. If D lend money in S.I. for 8 year he earns double Interest as he earns on same money in 2 years at C.I. then find the interest he earns on 1500 at S.I. in 3 year.

- (a) 500 Rs.  
(b) 360 Rs.  
(c) 900 Rs.  
(d) 495 Rs.  
(e) 600 Rs.

Q9. Interest earn by E in 2 years at C.I. is 25% more than the interest earns by him in 4 years at S.I. on same amount. What is the ratio of amount occurred when same sum is lend by D and E for 3 years at C.I.

- (a) 36 : 125  
(b) 64 : 113  
(c) 64 : 125  
(d) 75 : 113  
(e) 216 : 125

Q10. When B lends same sum on S.I. and C.I. each, he earn interest in ratio of 3 : 2 in which he lend amount at S.I. for 3 years and at C.I. for 2 years. If difference between total interest earn in S.I. and C.I. is 2640 Rs. then find rate at S.I. lends by B ?

- (a) 20%  
(b) 22%  
(c) 24%  
(d) 10%  
(e) 25%



### Solutions

S1. Ans.(c)

Sol.

Let speed on Saturday was  $5x$  km/hr.

$\therefore$  Speed on Wednesday =  $6x$  km/hr

$\therefore 5x + 72 + 80 + 6x + 64 + 54 = 67 \times 6$

$$\Rightarrow 11x = 132$$

$$\Rightarrow 6x = 72 \text{ km/hr}$$

S2. Ans.(c)

Sol.

Speed of Vande Bharat on Thursday

$$= 90 \times \frac{3}{4} \times 6 - (60 + 54 + 70 + 72 + 64)$$

$$= 85 \text{ km/hr}$$

$$\therefore \text{Required percentage} = \frac{85}{120} \times 100$$

$$\approx 71\%$$

S3. Ans.(d)

Sol.

Let Rajdhani runs  $x$  km on Thursday.

$$\therefore \frac{x + 150}{5} - \frac{x}{4} = 15$$

$$\Rightarrow 4x + 600 - 5x = 300$$

$$\Rightarrow x = 300 \text{ km}$$

$$\therefore \text{Required average} = \frac{1}{2} \times (300 + 450)$$

$$= 375 \text{ km}$$

S4. Ans.(b)

Sol.

Average speed during all the six days

$$= \frac{3400}{40} = 85 \text{ km/hr}$$

$$\therefore \text{Required percentage} = \frac{88 - 85}{85} \times 100 \approx 4\% \text{ more}$$

S5. Ans.(a)

Sol.

Let speed of Shiv Ganga Exp on Saturday and Friday be  $5x$  and  $3x$  km/hr respectively.

$$\therefore \text{Required percentage} = \frac{5x - 3x}{3x} \times 100 = 66\frac{2}{3}\%$$

S6. Ans.(d)

Sol.

Let amount lend at S.I. =  $x$

So, amount lend at C.I. =  $x + 1500$

ATQ,

Interest earn in S.I.  $\rightarrow (3 \times 12)\%$  of  $x$

Interest earn in C.I.  $\rightarrow \left(15 + 15 + \frac{15 \times 15}{100}\right)\%$  of  $(x + 1500)$

Now,

$$\frac{36 \times x}{100} = \frac{32.25}{100} (x + 1500)$$

$$x = 12900$$

Amount lend at CI = 12900 + 1500 = 14400 Rs.

S7. Ans.(a)

Sol.

Let amount lend in starting = 100

Now ATQ,

$$\text{Amount after 2 year} = 100 + \frac{100 \times 2 \times 10}{100} = 120$$

$$\text{Profit earn after 4 year} = 45.2\% \text{ of } 100 = 45.2$$

Now profit earn in 3<sup>rd</sup> & 4<sup>th</sup> year together

$$145.2 - 120 = 25.2$$

$$25.2 = 120 \left[ \left( 1 + \frac{r}{100} \right)^2 - 1 \right]$$

$$r = 10$$

S8. Ans.(d)

Sol.

Let amount = 100

Interest earn in C.I. for 2 year

$$= \frac{100}{100} \times \left( 20 + 20 + \frac{20 \times 20}{100} \right) = 44$$

Interest earn in S.I. after 8 year = 2 × 44 = 88

$$\text{So rate of S.I.} = \frac{88}{8} = 11$$

$$\text{Required sum} = \frac{1500 \times 3 \times 11}{100}$$

$$= 495 \text{ Rs.}$$

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S9. Ans.(c)

Sol.

ATQ —

Let amount lend = x

Rate of C.I. of lender E

$$1.25 \times \left(\frac{4 \times 25 \times x}{100}\right) = x \left[\left(1 + \frac{r}{100}\right)^2 - 1\right]$$

$$r = 50\%$$

Now let D and E lends 'y' amount at C.I

So,

Required ratio

$$\begin{aligned} &= \frac{y\left(1 + \frac{20}{100}\right)^3}{y\left(1 + \frac{50}{100}\right)^3} \\ &= \frac{12 \times 12 \times 12}{15 \times 15 \times 15} = \frac{64}{125} \end{aligned}$$

S10. Ans.(b)

Sol.

Ratio of Interest at S.I. and C.I. is 3 : 2

Given difference = 2640

$$\text{Interest earn at C. I.} = \frac{2640}{1} \times 2 = 5280$$

$$\text{Sum} \rightarrow 5280 = P \left[\left(1 + \frac{20}{100}\right)^2 - 1\right]$$

$$P = 12000$$

$$\text{Rate} \rightarrow 7920 = \frac{12000 \times 3 \times r}{100}$$

$$r = 22\%$$

Alternate,

$$\text{Overall rate of Compound} = 20 + 20 + \frac{20 \times 20}{100} = 44\%$$

Let Rate of Simple Interest = x%

ATQ,

$$\frac{3 \times x}{44} = \frac{3}{2}$$

$$\Rightarrow x = 22\%$$

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