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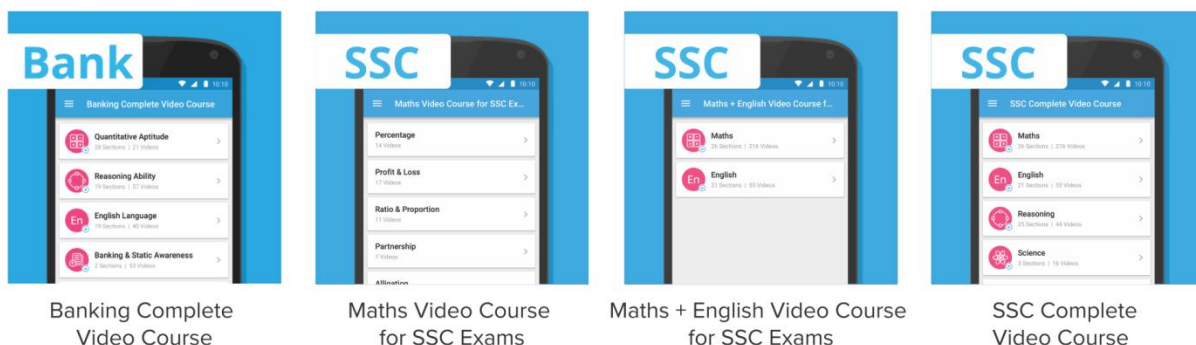
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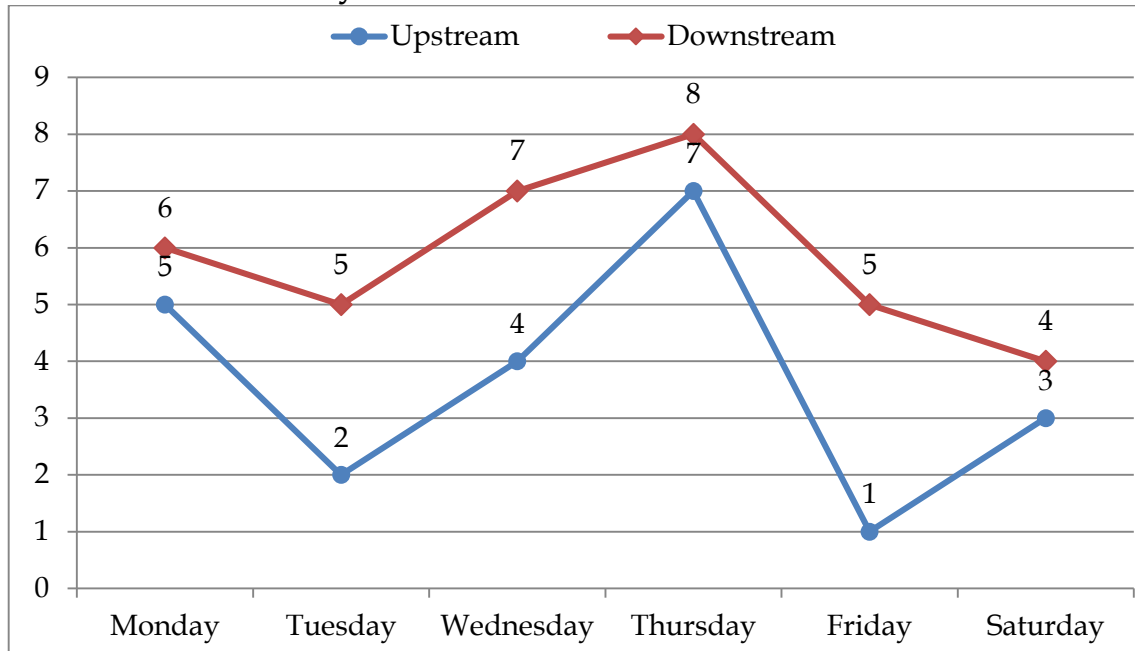
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Directions (1-5): The line graph given below shows the upstream and downstream speeds (in kmph) of A on different week days.



Q1. On Sunday, speed of A in still water is 15% more than his speed on Saturday and speed of stream is 10% less than that on Friday. If A rows the same distance up and down then what is the average speed throughout his total journey on Sunday? (Rounded off 2 decimal places)

- (a) 3.22 km/hr
- (b) 3.51 km/hr
- (c) 1.82 km/hr
- (d) 5.62 km/hr
- (e) 3.97 km/hr

Q2. If A travels a certain distance on Wednesday and takes 9 hours more to return to the initial point. How far was the place he travelled to?

- (a) 80 km
- (b) 72 km
- (c) 84 km
- (d) 93 km
- (e) None of these

Q3. A travels to a certain place on Thursday and returns back to the initial point in a total of $22\frac{2}{9}$ hours. How far was the place from the initial point? (Rounded off 2 decimal places)

- (a) 48.25 km
- (b) 98.99 km
- (c) 22.29 km
- (d) 82.95 km
- (e) 74.56 km



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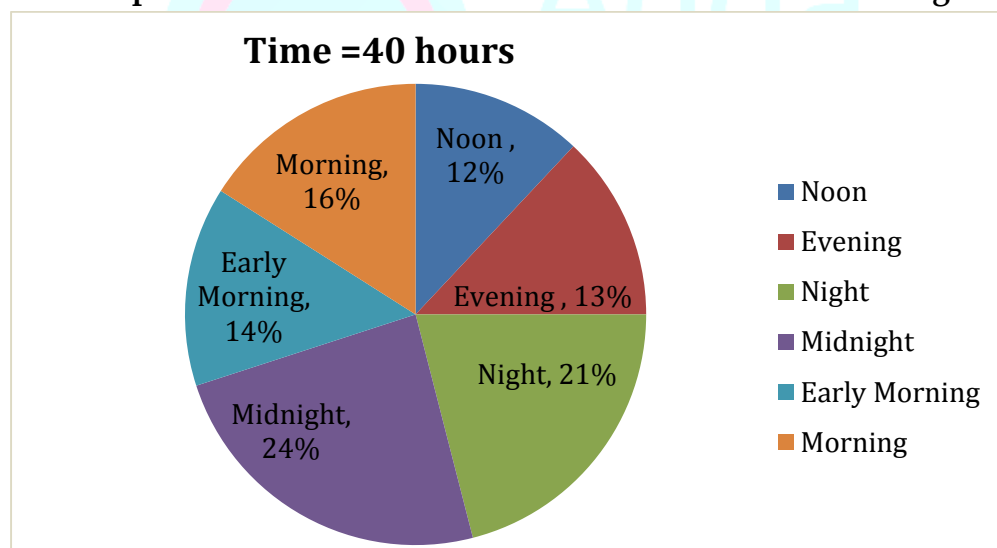
Q4. Due to some climatic change on Monday, the downstream speed has become $2\frac{1}{3}$ times of the previous downstream speed on Monday whereas the upstream speed is reduced by 20% find A's average speed if he travels the same distance up and down? (Rounded off 2 decimal places)

- (a) 4.66 km/hr
- (b) 5.22 km/hr
- (c) 6.22 km/hr
- (d) 7.66 km/hr
- (e) 7.22 km/hr

Q5. Calculate the ratio of respective speeds of A in still water on Tuesday to that of stream on Saturday.

- (a) 7 : 2
- (b) 7 : 1
- (c) 1 : 7
- (d) 2 : 7
- (e) None of these

Directions (6-10): Given below is a pie chart which shows the percentage distribution of time out of 40 hours for which a person covers a certain distance in river in different fragments of the day.



Q6. A motorboat covers a certain distance downstream in evening and returns covering the same distance upstream on the next day in early morning. If the speed of the stream is 6 km/hr, then what was the speed of motorboat in still water?

- (a) 56 km/h
- (b) 162 km/h
- (c) 146 km/h
- (d) 156 km/h
- (e) None of these

Q7. A can row a boat in still water at 8 km/hr. If speed of water current is $\frac{3}{4}$ th of the speed of boat in still water, and he rows downstream in noon, then what was the distance between the initial point and the place he travelled to?

- (a) 9.6 km
- (b) 14.4 km
- (c) 67.2 km
- (d) 28 km
- (e) None of these

Q8. A boat travels 36 km downstream in the morning and returns against the current at night. The speed of water current is what percent of the speed of boat in still water?

- (a) 9.91%
- (b) 5.62%
- (c) 4.95%
- (d) 13.53%
- (e) 9.58%

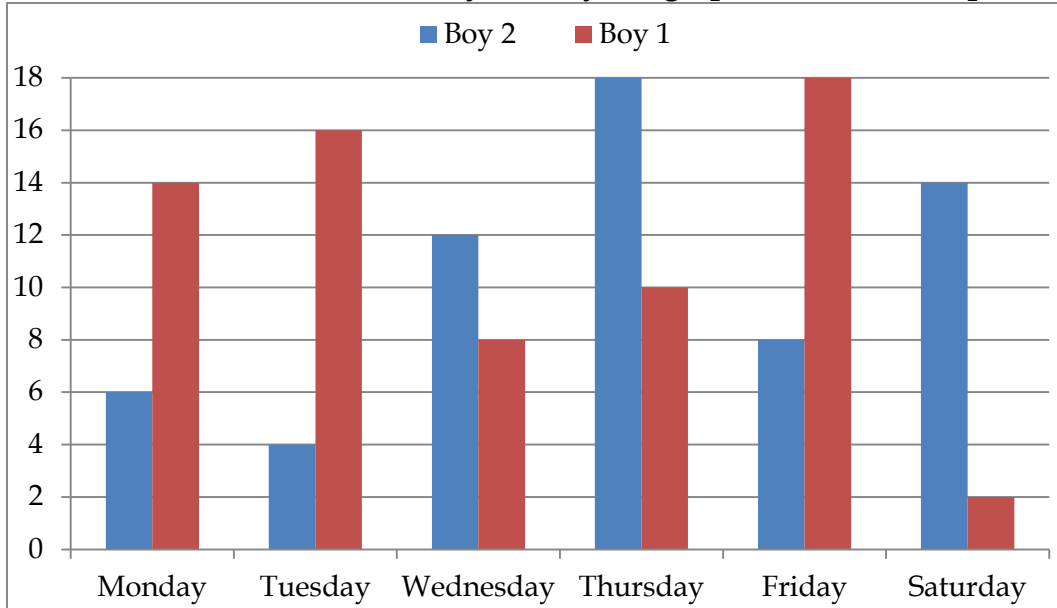
Q9. A man can row at a speed of 5km/h in still water and the speed of water current is 2 km/h. If he rows to a place downstream during night, and he has to pay Rs. 11 per kilometer to row through the river, then what is the amount that he pays?

- (a) Rs. 646.8
- (b) Rs. 37.8
- (c) Rs. 96.6
- (d) Rs. 84.6
- (e) None of these

Q10. The ratio of the speed of the boat to that of current of water is 42 : 5. If the boat goes downstream during early morning, then it will come back in (approximately)?

- (a) 8.99 h
- (b) 7.11 h
- (c) 9.88 h
- (d) 6.12 h
- (e) 6.27 h

Directions (11-15): The bar-graph given below shows the speed (in km/h) of Boy 1 and Boy 2 in still water on different week days. Study the graph & answer the questions based on it.



Q11. If the speed of the current on Thursday is 5 km/h, then what is the ratio of the downstream speed of B_1 to the upstream speed of B_2 .

- (a) 13 : 14
- (b) 14 : 13
- (c) 15 : 13
- (d) 13 : 15
- (e) None of these

Q12. What is the total time taken by B_1 on Monday and B_2 on Wednesday if they both swim through of distance of 10 km in still water.

- (a) 2.82 h
- (b) 0.24 h
- (c) 0.44 h
- (d) 1.54 h
- (e) 1.98 h

Q13. If B_1 and B_2 get into a race on Wednesday. B_1 has to swim downstream through a river that flows with a speed of $3\frac{2}{4}$ km/h and B_2 has to swim against the current through a river that flows with a speed of $1\frac{1}{6}$ km/h. The winner wins the race by how much time if the distance to be covered is 15 kms.

- (a) 5.10 minutes
- (b) 15.70 minutes
- (c) 9.70 minutes
- (d) 19.70 minutes
- (e) 7.70 minutes



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Bilingual

Q14. If B_1 and B_2 are being charged 73 Rs. per km to cover a distance in a river that flows with a speed of 3 km/h. If B_2 rows downstream on Tuesday and B_1 rows upstream on Friday, then how much do they have to pay if they row for 4 continuous hours.

- (a) Rs. 8,864
- (b) Rs. 7,924
- (c) Rs. 6,424
- (d) Rs. 8,746
- (e) None of these

Q15. If the speed of B_1 and B_2 is increased by 80% and decreased by 20% respectively on Sunday as compared to their speed on Saturday. If they both swim for 5 continuous hours on Sunday, then the distance that B_1 covers is what percent of the distance that B_2 covers? (Neglect speed of stream)

- (a) 16.24%
- (b) 32.14%
- (c) 14.00%
- (d) 38.12%
- (e) 35.44%

Directions (16-20): Given below is table which shows the number of people who fall under five different categories and the number of days & hours in which they finish their work.

	No. of people	Days	Hours (h)
Men	x	60	—
Women	5	8	7
Boys	y	55	—
Girls	12	4	—
Children	z	9	—

Q16. If there were 8 more men, the work could have been completed in 10 days less. Similarly, if there were 6 more boys, their work could be finished in 11 days less. Find $x : y$.

- (a) 40:29
- (b) 5:3
- (c) 19:45
- (d) 9:20
- (e) None of these

Q17. 5 of the children are on leave then the work is completed in 12 days. 'a' girls can complete 8 times of the work in half the time which is completed by 12 girls in 4 days. Then 'a' is what percent of 'z'?

- (a) 840%
- (b) 780%
- (c) 960%
- (d) 480%
- (e) None of these

Q18. If there were 2 more women, the work could have been completed in 4 days. If the manager pays them Rs. 81 for every hour, then, how much more amount does the manager need to pay per day now?

- (a) 910
- (b) 567
- (c) 810
- (d) 243
- (e) None of these

Q19. If the number of women is increased to 7 and their working hours are reduced to 5 h per day then the group of women can complete the work in 'a' days. And if the number of children is doubled then they can finish half of the work in 'b' days, then 'a' is what percent of 'b'? (Rounded off 2 decimal places)

- (a) 355.55%
- (b) 485.66%
- (c) 295.22%
- (d) 286.33%
- (e) 323.23%

Q20. Men earn Rs. 2050 and boys earn Rs. 3225 for their work. What is the ratio of per day earnings of men to that of boys?

- (a) 327:890
- (b) 288:521
- (c) 451:774
- (d) 398:811
- (e) None of these

Directions (21-25): Given below is table which shows the total number of men, women and children who can finish 5 different works together in the given number of days.

Work	Men	Women	Children	Days
Painting a house	4	6	10	5
Building a wall	8	17	—	33
Road making	1	2	3	88
Typing a book	—	6	12	20
Ploughing a field	3	4	—	43

1 Men = 2 Women = 3 Children

Q21. A family in which a couple has 2 daughter and 3 sons is asked to paint a house and make a road. What is the ratio of the time they take to paint a house to the time taken by them to make a road?

- (a) 221:820
- (b) 155:792
- (c) 19:229
- (d) 1631: 8336
- (e) None of these

Q22. Two different families have to complete against each other to win a contest. A family that has 2 couples is asked to plough two fields whereas the other family that has a woman will her 5 children is asked to type 3 books. The family that wins completes its work in how many days before the family that loses the competition?

- (a) $50\frac{9}{26}$
- (b) $59\frac{8}{32}$
- (c) $50\frac{20}{39}$
- (d) $42\frac{9}{26}$
- (e) None of these

Q23. If a couple earns Rs. 5290 per day building a wall then how much do 2 couples earn per day doing the same work?


- (a) 2645
- (b) 2235
- (c) 2585
- (d) 2849
- (e) None of these


Q24. A man is being paid Rs. 650 per day, then how much should a woman be paid for the same work?

- (a) 995
- (b) 975
- (c) 325
- (d) 635
- (e) None of these

Q25. If a couple builds a wall and another ploughs two fields at the same time. The couple who finishes the work first completes the work in what percent days lesser than the couple that finishes it late?

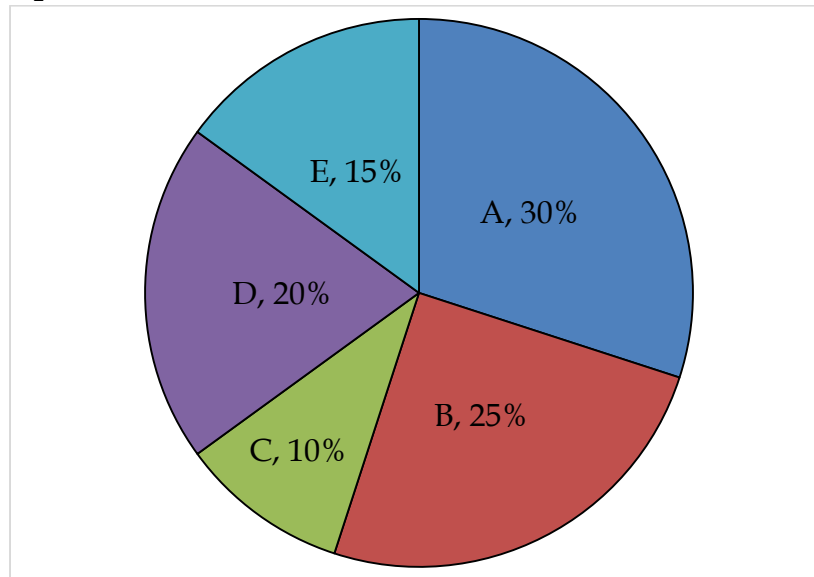
- (a) 124.22%
- (b) 34.54%
- (c) 174.87%
- (d) 21.03%
- (e) None of these

**CAREER POWER**
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RBI ASSISTANT
PRELIMS

15 MOCK TESTS
Bilingual

Directions (26-30): Given below is a pie chart. This pie chart shows the percentage efficiency (out of 100) of different people named A, B, C, D and E.



Q26. If A, D and C can finish a piece of work in 10 days. What is the ratio of the no. of days that A takes to complete the work alone to the no. of days that D takes to complete it alone?

- (a) 5:31
- (b) 1:3
- (c) 3:1
- (d) 22:59
- (e) None of these

Q27. A can finish a piece of work in 48 days less than C. The number of days in which they finish the work together is what percent of the number of days that C takes to do it alone?

- (a) 125%
- (b) 75%
- (c) 25%
- (d) 55%
- (e) None of these

Q28. E can finish a piece of work in 45 days. If E, D and B work alternatively starting from E on day 1, D on day 2 and B on day 3 then, in how many days will they complete work working alternatively.

- (a) 13 days
- (b) 34 days
- (c) 24 days
- (d) 48 days
- (e) None of these

Q29. E can do $\frac{6}{7}$ th of a job in 24 days. Time taken by A is what percent more or less by E?

- (a) 25%
- (b) 50%
- (c) 75%
- (d) 22%
- (e) None of these

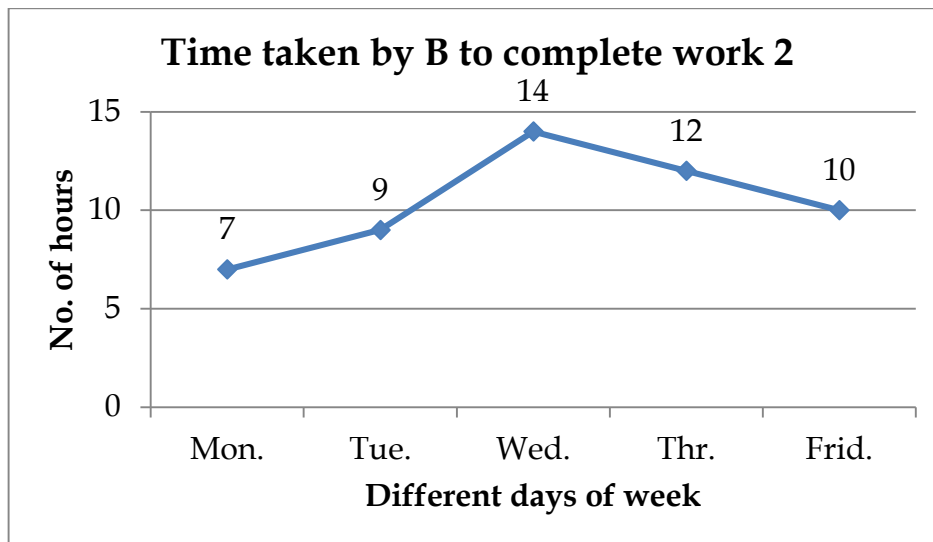
Q30. If C can finish a work in 8 days, what is the average of the no. of days that A, B, C, D & E take individually to finish the work?

- (a) 5.21
- (b) 6.84
- (c) 4.64
- (d) 6.22
- (e) None of these

Directions (31-35): Given below is table which shows the ratio of efficiency of both A and B on different days and total time taken by A and B to complete the work 1 if they complete whole work with the efficiency of different days.

There is also the line graph which shows the time taken by B to complete work 2 if it complete whole work with efficiency of different days.

Days	Efficiency of A & B	Time taken by both to complete work 1(hours)
Mon.	3 : 2	3
Tue.	3 : 2	4
Wed.	7 : 9	6
Thr.	8 : 9	5
Frid.	5 : 4	8



Note- The ratio of efficiency of A to B to do work 2 on different days is same as data given in the table for work 1.

Q31. A and B both started to complete work 1 on Tuesday but A left after working for 2 hours. Another person C whose efficiency is 60% of the efficiency of A (as of Tuesday) joins B. B leaves 2 hours before the completion of work then C alone finishes the remaining work. What is the total time in which work 1 is completed.

- (a) $\frac{105}{2}$ hours
- (b) $\frac{107}{13}$ hours
- (c) $\frac{108}{19}$ hours
- (d) $\frac{110}{19}$ hours
- (e) $\frac{110}{13}$ hours

Q32. If a part of work 2 completed by 4 women in 5 hours equals to the part of work 2 done by B on Wednesday in 7 hours and ratio of efficiency of a women and a children to complete work 2 is 5 : 3 then in what time work 2 will be completed by 3 children.

- (a) $\frac{100}{9}$ hours
- (b) $\frac{200}{9}$ hours
- (c) $\frac{100}{11}$ hours
- (d) $\frac{200}{11}$ hours
- (e) $\frac{150}{11}$ hours

Q33. x can complete a work in $(n - m)$ hours while y can complete the same work in $(n + m)$ hours where m is the time taken by A to complete work 2 on Tuesday and n is time taken by A to complete work 2 on Friday. Find the time in which x and y together can complete the work.

- (a) $\frac{3}{2}$ hours
- (b) $\frac{7}{4}$ hours
- (c) $\frac{7}{5}$ hours
- (d) $\frac{8}{3}$ hours
- (e) $\frac{9}{5}$ hours

Q34. A and B started to complete work 1, alternatively starting from A on first hour on Monday then time taken by A and B in completing 80% of work 1, alternatively on Monday is what percent more or less than time taken by A and B together to complete work 2 together on Friday.

- (a) 3%
- (b) 5%
- (c) 8%
- (d) 15%
- (e) 6%



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**AGRICULTURE FIELD
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2017-18**

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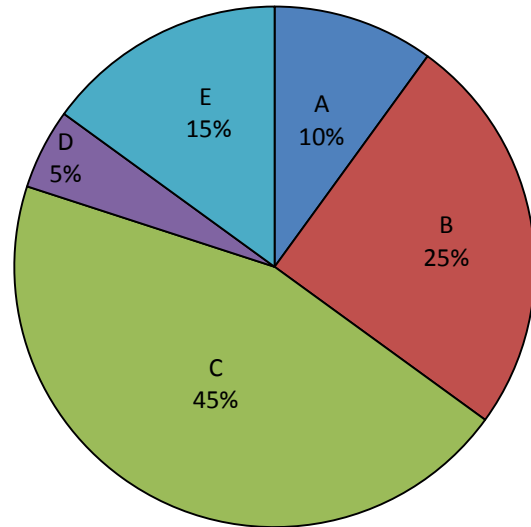
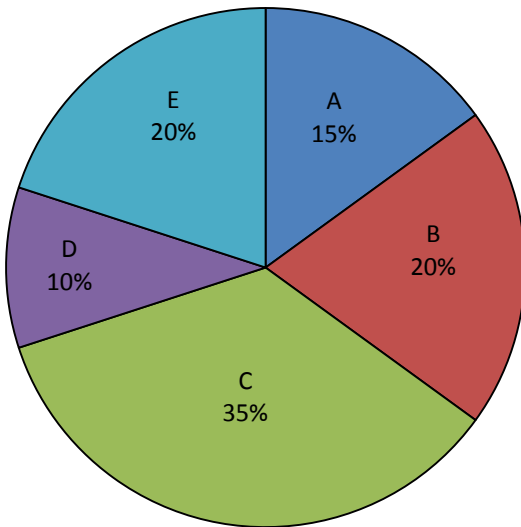
Bilingual

Only English Medium

Q35. If B with another person C works on work 2 on Friday for 2 hours than 80% of work 2 is completed then, time taken by C alone to finish work 2 is what percent to time taken by B to finish work 1 with efficiency of Friday –

- (a) $\frac{500}{27}\%$
- (b) $\frac{400}{13}\%$
- (c) $\frac{300}{17}\%$
- (d) $\frac{400}{21}\%$
- (e) $\frac{500}{21}\%$

Directions (36-40): Given below are two pie charts. Pie chart I shows the percentage distribution of milk in five vessels out of the total milk in these five vessels. Pie chart II shows the percentage distribution of water in same five vessels out of total quantity of water in these five vessels.



Note: Ratio of total milk to total water in these five containers is 2 : 1.

Q36. A shopkeeper pours the mixture of vessel A and B into another vessel F. Vessel F contains water only which is equal to 25% of water of vessel B. If shopkeeper professes to sell the whole mixture at the cost price of pure milk and cost price for shopkeeper is due to milk only, then find the percentage profit of shopkeeper in selling whole mixture. (2 Marks)

- (a) $58\frac{13}{14}\%$
- (b) $3\frac{13}{15}\%$
- (c) $54\frac{13}{15}\%$
- (d) $53\frac{13}{14}\%$
- (e) $55\frac{20}{21}\%$

Q37. Mixture of vessel A and C are mixed into another vessel M. If 62 liters of the mixture M is taken out and replaced with 17 L of water, the ratio of milk to water in M becomes 6 : 5. Find the quantity of milk in vessel B. (2 Marks)

- (a) 60 L
- (b) 20 L
- (c) 40 L
- (d) 45 L
- (e) 50 L

Q38. All the contents of mixture from all vessels except C is poured into bigger vessel and from vessel C, only 115 liters of mixture is taken out and poured into bigger vessel, then ratio of milk and water in bigger vessel becomes 9 : 4. Find the total quantity of water in all five vessels. (2 Marks)


- (a) 550 L
- (b) 500 L
- (c) 600 L
- (d) 650 L
- (e) 700 L

Q39. Some quantity of mixture from vessel D and E are taken out and ratio of quantity taken out from vessel D and E is in ratio 3 : 2, then find the ratio of milk and water of the final mixture. (2 Marks)


- (a) $\frac{211}{47}$
- (b) $\frac{202}{59}$
- (c) $\frac{220}{89}$
- (d) $\frac{112}{57}$
- (e) $\frac{212}{63}$

Q40. If total quantity of milk and water in vessel C is 115 L, then the quantity of milk and water in vessel B is how much more or less than quantity of milk and water in vessel E? (2 Marks)

- (a) $15\frac{2}{11}\%$
- (b) $14\frac{5}{7}\%$
- (c) $15\frac{5}{6}\%$
- (d) $18\frac{2}{11}\%$
- (e) $17\frac{2}{11}\%$



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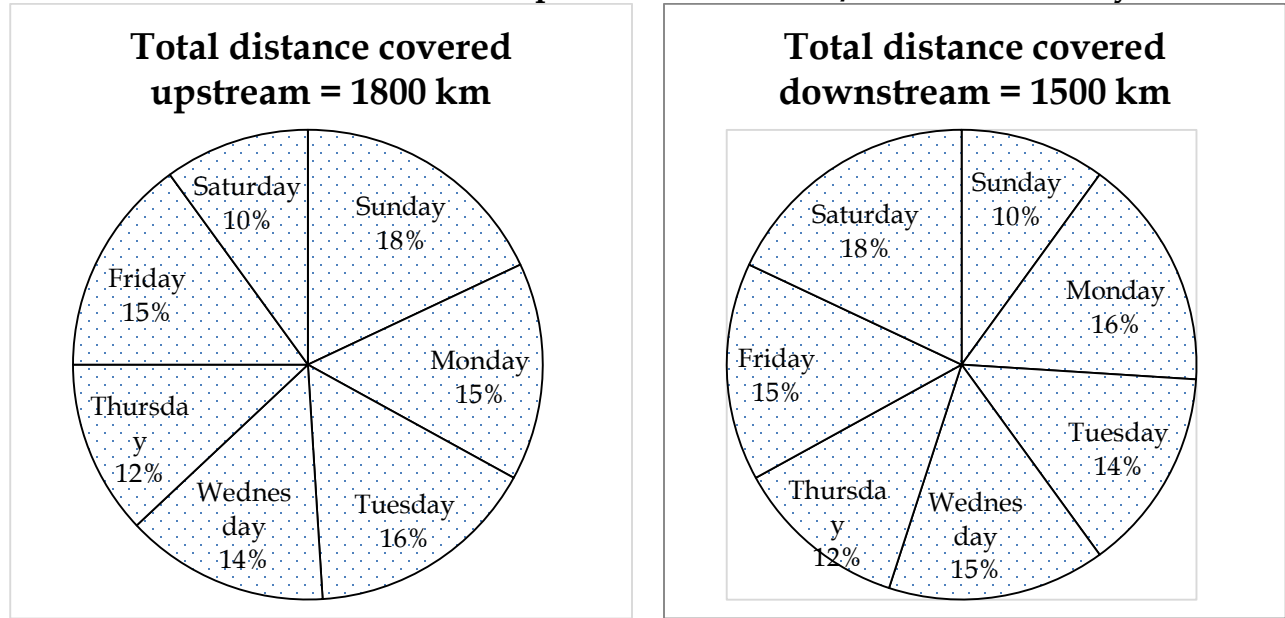
RBI ASSISTANT
COMBO

25 TOTAL TEST

- 15 PRE MOCKS
- 10 MAINS MOCKS

Bilingual

Directions (41-45): Study the data given below and answer the following questions. The pie charts shown below shows the distance covered by a boat moving upstream and downstream in different days of a week. And the table shows the speed of stream in km/hr. in different days of a week.



Day	Speed of stream (km/hr)
Monday	2
Tuesday	3
Wednesday	—
Thursday	1
Friday	2
Saturday	—
Sunday	4

Q41. If the time taken by boat to travel upstream on Thursday is equal to the time taken by it to travel downstream on Monday and the speed of boat in still water on Monday is 16 kmph then find the speed of boat in still water on Thursday?

- (a) 16.2 kmph
- (b) 17.2 kmph
- (c) 15.4 kmph
- (d) 12.5 kmph
- (e) None of these

Q42. If the time taken by boat to travel upstream on Monday is $\frac{45}{11}$ hrs. more than the time taken by it to travel downstream on the same day, then find the speed of boat in still water on Monday ?

- (a) 22 kmph
- (b) 18 kmph
- (c) 20 kmph
- (d) 19 kmph
- (e) None of these

Q43. If the speed of boat in still water on Tuesday was 15 km/hr and the speed of boat in still water on Wednesday was $66\frac{2}{3}\%$ more than that of Tuesday and time taken to travel upstream on Wednesday is $\frac{9}{10}$ times than time taken by it to travel downstream on Tuesday, then find the speed of stream (in kmph) on Wednesday?

- (a) 1.5
- (b) 2.5
- (c) 2
- (d) 1
- (e) None of these

Q44. The speed of boat in still water on Saturday was 21 km/hr. and that on Sunday was $28\frac{4}{7}\%$ less than that on Saturday, if the time taken by boat to travel upstream on Saturday is $1\frac{3}{16}$ times than time taken to travel downstream on Sunday, then find the time taken by the boat to cover a distance of 57.6 km upstream when the speed of stream is same as that of Saturday.

- (a) 3 hrs.
- (b) 2 hrs.
- (c) 4 hrs.
- (d) 2.5 hrs.
- (e) None of these

Q45. If the time taken by boat to travel upstream on Sunday is 2 hours more than the time taken by it to travel downstream on Thursday and the speed of boat in still water on Thursday is 17 kmph, then find the upstream speed of boat on Sunday ?

- (a) 27 kmph
- (b) 22 kmph
- (c) 20 kmph
- (d) 25 kmph
- (e) None of these

Directions (46-50). There are five shop owners A, B, C, D and E. They are selling five different items given in the table.

In the table, Discount (as a percentage) is given on mark price of these five products by different sellers. Study the table and answer the following questions:

	Item I	Item II	Item III	Item IV
A	18%	32%	36%	—
B	22%	—	33%	40%
C	—	16%	14%	15%
D	28%	28%	16%	—
E	—	8%	—	7%

Note:

- Some values are missing. You have to calculate these values as per data given in the questions.
- Mark price of a particular item is same for all of the shop owners.

Q46. If the profit percentage of seller A after selling item II is $s\%$ and that of seller C for the same item is $(2s - 4)\%$ and the ratio of cost price of item II by seller A and seller C is 17 : 21 then find the value of s ?

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) none of these

Q47. For seller D, between the selling price of item II and that of item III is 420 Rs. if the sum of the mark price of item II and item III by the same seller is 6000 then the Mark price (in Rs.) of item II is what percent more/less than that of item III by the same seller ? (Selling price of item II is greater than that of item III)

- (a) 50%
- (b) 40%
- (c) 30%
- (d) 35%
- (e) 45%

Q48. Average SP of item II by seller A and B is Rs 3888, by seller B and C is Rs 3300. Find the SP (in Rs.) of item III by seller C.

- (a) 4536
- (b) 3656
- (c) 5430
- (d) 4150
- (e) none of these

Q49. If the selling price of item I and item III by seller E are in the ratio of 5 : 6. If the seller earned a profit of 25% which is Rs. 750 on item I and 20% on item III then find the total profit (in Rs.) by selling item I and item III together by the same seller ?

- (a) 750
- (b) 2000
- (c) 1750
- (d) 1250
- (e) 1500

Q50. Cost price of item III is 60 Rs. for all of the sellers and all of them marked the same product at $66\frac{2}{3}\%$ higher than the cost price, then to get a total profit of 80 Rs. by all of the five sellers after selling item III, what is the minimum discount should be provided by seller E on item III.

- (a) 21%
- (b) 19%
- (c) 17%
- (d) 25%
- (e) None of these

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 **IT OFFICER**
(SCALE -I)
2017-18

COMBO

- 10 PRELIMS MOCKS
- 10 MAINS MOCKS

Bilingual

English Medium

S1. Ans.(a)

Sol. Speed of man on Saturday

$$= \frac{1}{2} (\text{downstream speed} + \text{upstream speed})$$

$$= \frac{1}{2} (4 + 3) = \frac{7}{2} = 3.5 \text{ km/h}$$

Speed of man on Sunday

$$= \frac{115}{100} \times 3.5 = 4.025$$

Speed of river on Friday

$$= \frac{1}{2} (\text{downstream speed} - \text{upstream speed})$$

$$= \frac{1}{2} (5 - 1) = \frac{4}{2} = 2 \text{ km/hr}$$

Speed of river on Sunday

$$\frac{90}{100} \times 2 = 1.8 \text{ km/hr}$$

Let the speed of man & water current be x & y .

Average speed of man throughout the journey.

$$= \frac{(x - y)(x + y)}{x} \text{ km/hr}$$

$$= \frac{(4.025 - 1.8)(4.025 + 1.8)}{4.025}$$

$$= \frac{(2.225)(5.825)}{4.025}$$

$$= 3.22 \text{ km/hr}$$

S2. Ans.(c)

Sol. Let the speeds of A and Water current be x and y respectively.

$$x = \frac{1}{2} (\text{downstream speed} + \text{upstream speed})$$

$$x = \frac{1}{2} (7 + 4)$$

$$= \frac{11}{2} = 5.5 \text{ km/hr}$$

$$y = \frac{1}{2} (\text{downstream speed} - \text{upstream speed})$$

$$= \frac{1}{2} (7 - 4)$$

$$= \frac{1}{2} (3)$$


$$= 1.5 \text{ km/hr}$$

$$\text{Now distance} = \frac{(x^2 - y^2)t}{2y}$$


$$t = \text{time taken} = 9\text{h}$$

$$= \frac{\{(5.5)^2 - (1.5)^2\}9}{2 \times (1.5)} = \frac{\{30.25 - 2.25\}9}{3}$$

$$= 84 \text{ km}$$



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S3. Ans.(d)

Sol. Let the speeds of A and water current be x and y respectively.

$$x = \frac{1}{2} (\text{downstream speed} + \text{upstream speed})$$

$$= \frac{1}{2} (8 + 7)$$

$$= \frac{15}{2} = 7.5 \text{ km/hr}$$

$$y = \frac{1}{2} (\text{downstream speed} - \text{upstream speed})$$

$$= \frac{1}{2} (8 - 7)$$

$$= \frac{1}{2} = 0.5 \text{ km/hr}$$

$$\therefore \text{distance} = \frac{t(x^2 - y^2)}{2x} \text{ km}$$

$$t = 22 \frac{2}{9} \text{ h}$$

$$= \frac{22 \frac{2}{9} [(7.5)^2 - (0.5)^2]}{2 \times 7.5}$$

$$= \frac{22.22 [56.25 - 0.25]}{15}$$

$$= 82.95 \text{ km}$$

S4. Ans.(c)

Sol. Original downstream speed on Monday = 60 km/hr

Changed downstream speed = $\frac{7}{3} \times 60 \text{ km/hr} = 14 \text{ km/hr}$

Original upstream speed on Monday = 5 km/hr

Changed upstream speed = $\frac{80}{100} \times 5 = 4 \text{ km/hr}$

Let the speeds of A and water current be x and y respectively.

$$x = \frac{1}{2} (\text{downstream speed} + \text{upstream speed})$$

$$= \frac{1}{2} (14 + 4)$$

$$= \frac{1}{2} (18) = 9 \text{ km/hr}$$

$$y = \frac{1}{2} (\text{downstream speed} - \text{upstream speed})$$

$$= \frac{1}{2} (14 - 4)$$

$$= \frac{1}{2} (10) = 5 \text{ km/hr}$$

$$\therefore \text{Average speed} = \frac{(x - y)(x + y)}{x} \text{ km/hr}$$

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

$$= \frac{(4)(14)}{9} = 6.22 \text{ km/hr}$$

S5. Ans.(b)

Sol. Speed of A in still water on Tuesday $= \frac{1}{2} (50 + 20)$
 $= \frac{7}{2}$

Speed of stream on Saturday $= \frac{1}{2} (4 - 3)$

$= \frac{1}{2}$

\therefore The required ratio $= 7 : 1$

S6. Ans.(b)

Sol. Time taken to cover the distance downstream in evening, t_1

$= 13 \times \frac{40}{100}$

$= 5.2$ hours.

Time taken to cover the distance upstream in early morning, t_2

$= 14 \times \frac{40}{100}$

$= 5.6$ hours

The speed of stream, 4

$= 6$ km/h

\therefore The speed of motorboat in still water

$= y \left(\frac{t_2 + t_1}{t_2 - t_1} \right)$

$= 6 \left(\frac{5.2 + 5.6}{5.6 - 5.2} \right)$

$= 6 \left(\frac{10.8}{0.4} \right)$

$= 162$ km/h

S7. Ans.(c)

Sol. Speed of boat in still water, $x = 8$ km/h

Speed of water current, y

$= \frac{3}{4} \times 8 = 6$ km/h

Required distance $= \frac{12}{100} \times 40 \times 14 = 67.2$ km

S8. Ans.(d)

Sol. Downstream speed $= \frac{36}{(\text{time taken in morning})}$

$= \frac{36}{\left(16 \times \frac{40}{100}\right)} \frac{36}{6.4} = 5.62$ km/h

Upstream speed $= \frac{36}{(\text{time taken during night})}$

$= \frac{36}{\left(\frac{21}{100} \times 40\right)} = \frac{36}{8.4}$

$= 4.28$ km/h



Speed of boat in still water = $\frac{1}{2}$ (downstream speed + upstream speed)

$$= \frac{1}{2} (5.62 + 4.28)$$

$$= \frac{1}{2} (9.9)$$

$$= 4.95 \text{ km/h}$$

Speed of stream = $\frac{1}{2}$ (down speed - up speed)

$$= \frac{1}{2} (5.62 - 4.28)$$

$$= 0.67$$

$$= 0.33 \text{ km/h}$$

$$\text{Required percentage} = \frac{0.67}{4.95} \times 100 = 13.53\%$$

S9. Ans.(a)

Sol. The speed of the man, $x = 5 \text{ km/h}$

The speed of water current, $y = 2 \text{ km/h}$

$$\text{Distance covered} = \frac{21}{100} \times 40 \times (5 + 2) = 58.8 \text{ km}$$

$$\text{Required amount} = 58.8 \times 11 \text{ Rs.} = \text{Rs.} 646.8$$

S10. Ans.(b)

Sol. Let the speed of the boat be $42x \text{ km/h}$ and speed of water current be $5x \text{ km/h}$

The boat goes downstream in $\left(\frac{14 \times 40}{100}\right) \text{ h}$

$$= 5.6 \text{ h}$$

Distance = speed \times time

$$\therefore \text{Distance} = 5.6 \times (42x + 5x)$$

$$= 47x \times 5.6$$

$$\text{Upstream speed} = 42x - 5x$$

$$= 37x \text{ km/h}$$

$$\therefore \text{Time taken} = \frac{47x \times 5.6}{37x}$$

$$= 7.11 \text{ h}$$

S11. Ans.(c)

Sol. Speed of current = 5 km/h

Downstream speed of B_1

$$= (5 + 10) \text{ km/h}$$

$$= 15 \text{ km/h}$$

Upstream speed of B_2

$$= (18 - 5)$$

$$= 13 \text{ km/h}$$

$$\therefore \text{Required ratio} = 15 : 13$$



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S12. Ans.(d)

Sol. Time taken by B_1 on Monday = $\frac{10}{14}$ h

Time taken by B_2 on Wednesday = $\frac{10}{12}$ h

$$\begin{aligned}\therefore \text{Required time} &= \frac{10}{14} + \frac{10}{12} \\ &= 1.54 \text{ h}\end{aligned}$$

S13. Ans.(a)

Sol. Speed of $B_1 = 8 + 3\frac{2}{4} = 11.5$ km/h

Speed of $B_2 = 12 - 1\frac{1}{6} = 10.83$ km/h

Time spent by $B_1 = \frac{15}{11.5}$ h = 1.30 h

Time spent by $B_2 = \frac{15}{10.83}$ h
= 1.385 h

$\therefore B_1$ wins the race by

$$\begin{aligned}(1.385 - 1.30) \text{ h} &= 0.085 \text{ h} \\ &= 5.10 \text{ minutes}\end{aligned}$$

S14. Ans.(c)

Sol. Downstream speed of B_2 on Tuesday = $4 + 3 = 7$ km/h

Upstream speed of B_1 on Friday = $18 - 3 = 15$ km/h

Distance covered by B_1 and B_2 in 4 hours = $[4 (7 + 15)]$ km
= 88 km

The amount that they pay

$$= 88 \times 73 = \text{Rs. } 6,424$$

S15. Ans.(b)

Sol. Speed of B_1 on Saturday = 2 km/h

Speed of B_1 on Sunday = $\frac{180}{100} \times 2$
= 3.6 km/h

Speed of B_2 on Saturday = 14 km/h

Speed of B_2 on Sunday = $\frac{80}{100} \times 14 = 11.2$ km/h

Distance that B_1 course in 5 hours = $5 \times 3.6 = 18$ km

Distance that B_2 course in 5 hours = $5 \times 11.2 = 56$ km

$$\begin{aligned}\therefore \text{Required percentage} &= \frac{18}{56} \times 100 \\ &= 32.14\%\end{aligned}$$

S16. Ans.(b)

Sol. According to question,

In case of men,

$$M_1 = x, D_1 = 60$$

$$M_2 = (x + 8), D_2 = 50$$

$$\text{And, } M_1 D_1 = M_2 D_2$$

$$\Rightarrow x \times 60 = (x + 8) \times 50$$

$$\Rightarrow 60x = 50x + 400$$

$$\Rightarrow 10x = 400$$

$$\therefore x = 40$$

Also, in case of boys

$$D_1 = 55, M_1 = y$$

$$D_2 = 44, M_2 = (y + 6)$$

$$\text{Applying, } M_1 D_1 = M_2 D_2$$

$$y \times 55 = (y + 6) \times 44$$

$$\Rightarrow 5y = 4(y + 6)$$

$$\Rightarrow 5y = 4y + 24$$

$$\Rightarrow 5y - 4y = 24$$

$$\Rightarrow y = 24$$

$$\therefore x : y = 40 : 24$$

$$= 5 : 3$$

**S17. Ans.(c)**

$$\text{Sol. } z \times 9 = (z - 5)12$$

$$\Rightarrow 3z = (z - 5) 4$$

$$\Rightarrow 3z = 4z - 20$$

$$\Rightarrow z = 20$$

In case of girls,

$$M_1 = 12, D_1 = 4 \text{ and } W_1 = 1$$

Let the new no. of girls be a

$$M_2 = 'a', D_2 = 2 \text{ and } W_2 = 8$$

\therefore formula, we have,

$$\Rightarrow \frac{12 \times 4}{1} = \frac{a \times 2}{8}$$

$$\Rightarrow a = 48 \times 4$$

$$\Rightarrow a = 192$$

$$\therefore \text{ the required \%} = \frac{192}{20} \times 100 = 960\%$$

S18. Ans.(d)

Sol. $M_1 = 5, D_1 = 8, H_1 = 7$

$M_2 = 7, D_2 = 4, H_2 = a$

$M_1 D_1 H_1 = M_2 D_2 H_2$

$\Rightarrow 5 \times 8 \times 7 = 7 \times 4 \times a$

$\Rightarrow a = 10$

\therefore the amount that the manager needs to pay now $= 10 \times 81 = 810$

The amount that manager paid earlier $= 7 \times 81 = 567$

\therefore the required amount $= 810 - 567 = 243$

S19. Ans.(a)

Sol. In case of women,

$M_1 = 5, D_1 = 8, H_1 = 7$

$M_2 = 7, D_2 = a, H_2 = 5$

And, $M_1 D_1 H_1 = M_2 D_2 H_2$

$\Rightarrow 5 \times 8 \times 7 = 7 \times a \times 5$

$\Rightarrow a = 8$

In case of children,

$$\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2}$$

$$\Rightarrow \frac{M \times 9}{W} = \frac{2M \times D_2}{\frac{W}{2}}$$

$$\Rightarrow \frac{M \times 9}{W} = \frac{4MD_2}{W}$$

$$\therefore D_2 = \frac{9}{4}$$

Required percentage

$$= \frac{8}{\frac{9}{4}} \times 100$$

$$= \frac{32}{9} \times 100$$

$$= 355.55\%$$

S20. Ans.(c)

Sol. Earnings of men $= \frac{2050}{60}$

And earnings of boys $= \frac{3225}{55}$

\therefore The required ratio =

$$\frac{2050}{60} : \frac{3225}{55}$$

$$= \frac{451}{774}$$



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S21. Ans.(b)**Sol.** Painting a house $\rightarrow 4M + 6W + 10C \rightarrow 5 \text{ days} \dots(i)$

$$1M = 2W = 3 \text{ children}$$

$$1M = 3C, 1W = 1.5 C$$

$$4M + 6W + 10C \Rightarrow 12C + 9C + 10C = 31C$$

31 takes 5 days to paint a house

5 children will take

$$= \frac{31 \times 5}{5} = 31 \text{ days}$$

Making a Road \rightarrow

$$1M + 2W + 3C \rightarrow 88 \text{ Days} \dots(ii)$$

$$1M = 3C, 1W = 1.5 C$$

$$1M + 2W + 3C \Rightarrow 3C + 3C + 3C = 9C$$

9C takes 88 days to complete the road

5 children will take

$$= \frac{9 \times 88}{5}$$

Ratio \rightarrow Paint a house : Road making

$$\begin{array}{ccc} 31 & : & \frac{792}{5} \\ 155 & : & 792 \end{array}$$

S22. Ans.(c)**Sol.** Ist family $\rightarrow 2 \text{ couples} \Rightarrow 2M + 2W$

$$1M = 2W + 3C$$

$$1M = 2W$$

$$\rightarrow 2M + 2W = 4W + 2W = 6W$$

$$\text{Plough two fields} \Rightarrow 3M + 4W \Rightarrow 86 [43 \times 2]$$

$$\downarrow$$
 2 field

$$6W + 4W \Rightarrow 86$$

$$10W \Rightarrow 86$$

$$10W \text{ plough 2 fields in } \rightarrow \frac{86 \times 10}{6}$$

$$= \frac{860}{6} = \frac{430}{3}$$

$$2 \text{ couples will take} = 143 \frac{1}{3} \text{ days}$$

$$\text{IInd family} \rightarrow 1W + 5C \Rightarrow \frac{13}{2} C \quad \left[1W = \frac{3}{2} C \right]$$

$$6W + 12 C, \text{ will take 20 days to type a book}$$

$$\text{To type 3 book, } 6W + 12C \Rightarrow 60 \text{ days}$$

$$21C \Rightarrow 60 \text{ days} \quad \left[1W = \frac{3C}{2} \right]$$

$$\frac{13}{2} C \text{ will take to type 3 books}$$

$$\Rightarrow \frac{60 \times 21 \times 2}{13} = \frac{2520}{13} = 193 \frac{11}{13}$$

$$\text{Desired difference} = 193 \frac{11}{13} - 143 \frac{1}{3}$$

$$= 50 \left(\frac{11}{13} - \frac{1}{3} \right)$$

$$= 50 \left(\frac{33 - 13}{39} \right)$$

$$= 50 \frac{20}{39} \text{ days}$$

S23. Ans.(a)

Sol. 1 couples \rightarrow 5290/day

$$1M + 1W \rightarrow 5290 \quad [1M = 2W]$$

$$3W \rightarrow 6290$$

$$2 \text{ couples} \Rightarrow 2M + 2W = 6W \quad [1M = 2W]$$

$$6W \rightarrow \frac{5290}{2} \text{ Rs./day} = 2645 \text{ Rs./day}$$

S24. Ans.(c)

Sol.

$$1M \rightarrow \text{Rs. } 650/\text{day}$$

$$1M = 2W$$

$$1W \rightarrow \text{Rs. } \frac{650}{2}/\text{day}$$

$$= \text{Rs. } 325/\text{day}$$



S25. Ans.(d)

Sol. Ist couple $\rightarrow 1M + 1W \Rightarrow 3W \quad [1M = 2W]$

$$8M + 17W \rightarrow 33 \text{ days}$$

$$33W = 33 \text{ days}$$

3 women fill build the wall in

$$= \frac{33 \times 33}{3} = 363 \text{ days}$$

IInd couple $\rightarrow 1M + 1W = 3W \quad [1M = 2W]$

$$3M + 4W \rightarrow 43 \text{ day [one field]}$$

$$6W + 4W \rightarrow 86 \text{ days [1M = 2W]}$$

$$10W \rightarrow 86 \text{ days.}$$

3 women fill plough 2 fields in

$$= \frac{86 \times 10}{3} = \frac{860}{3} \text{ days}$$

$$\% = \frac{363 - \frac{860}{3}}{363} \times 100$$

$$= 21.03\%$$

S26. Ans.(b)

Sol. Ratio of efficiency of A, D and C is 3 : 2 : 1

∴ Ratio of number of days taken by A, D and C to complete the work is $\frac{1}{3} : \frac{1}{2} : 1$

$$= 2 : 3 : 6$$

$$\text{Required ratio} = 2 : 6 = 1 : 3$$

S27. Ans.(c)

Sol. Work efficiency ratio of A and C = 3 : 1

Ratio of time taken by A and C to complete the work = 1 : 3

Time taken by A to complete the work = x days

Time taken by C to complete the work = 3x days

$$\therefore 3x - x = 48 \text{ days}$$

$$\Rightarrow 2x = 48 \text{ days}$$

$$x = 24 \text{ days}$$

$$\Rightarrow x = 24 \text{ \& } 3x = 72 \text{ days}$$

∴ C can do it alone in 72 days

∴ (A + C)'s 1 day work

$$= \frac{1}{24} + \frac{1}{72}$$

$$= \frac{3+1}{72} = \frac{4}{72} = \frac{1}{18}$$

∴ they together can complete the work in 18 days

∴ the required percent

$$= \frac{18}{72} \times 100 = 25\%$$

S28. Ans.(b)

Sol. Work efficiency ratio of E, D and B = 15 : 20 : 25 = 3 : 4 : 5

Let, E completes 3x units in one day.

In 45 days, he completes $45 \times 3x = 135x$ units

In every three days, $[3x + 4x + 5x]$ units are being completed.

In 33 days, $12x \times 11$ units will be completed

On 34th day the remaining 3x units will be completed by E.

S29. Ans.(b)

Sol. Ratio of efficiency of A and E is 30 : 15 = 2 : 1

∴ Ratio of number of days taken by A and E to complete the work is $\frac{1}{2} : 1$

$$= 1 : 2$$

$$\text{Required \%} = \frac{1}{2} \times 100 = 50\%$$



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S30. Ans.(c)**Sol.** Ratio of efficiency of A, B, C, D and E is

$$A : B : C : D : E$$

$$= 30 : 25 : 10 : 20 : 15$$

$$= 6 : 5 : 2 : 4 : 3$$

∴ Ratio of number of days taken by A, B, C, D and E to complete the work is $\frac{1}{6} : \frac{1}{5} : \frac{1}{2} : \frac{1}{4} : \frac{1}{3}$

$$= 10 : 12 : 30 : 15 : 20$$

C finishes the work in 8 days

∴ A, B, D and E complete the work individually in $\frac{8}{3}$, $\frac{16}{5}$, 4 and $\frac{16}{3}$ days respectively.

∴ The required average

$$= \frac{8 + \frac{16}{5} + \frac{8}{3} + \frac{16}{3} + 4}{5} = 4.64 \text{ days}$$

S31. Ans.(c)**Sol.** Let A and B can do $3x$ and $2x$ unit of work 1 in one hour respectively.So, total work 1 done by both = $(3x + 2x)4$

$$= 20x$$

$$\text{A alone will complete work 1} = \frac{20x}{3x} = \frac{20}{3} \text{ hours}$$

$$\text{B alone will complete work 1} = \frac{20x}{2x} = 10 \text{ hours}$$

$$\text{Ratio of efficiency of A and C} = 5 : 3$$

$$\text{Ratio of time taken by A and C} = 3 : 5$$

$$\text{C alone will complete work 1} = \frac{20}{3 \times 3} \times 5 \text{ hours}$$

$$= \frac{100}{9} \text{ hours}$$

Let total time taken in completing work 1 is y

So,

$$\frac{\frac{20}{3}}{y} + \frac{(y-2)}{10} + \frac{(y-2)}{\frac{100}{9}} = 1$$

$$\frac{(y-2)}{10} + \frac{9(y-2)}{100} = \frac{7}{10}$$

$$10y - 20 + 9y - 18 = 70$$

$$y = \frac{108}{19} \text{ hours}$$

S32. Ans.(b)**Sol.** Part of work 2 done by B on Wednesday in 7 hours = $\frac{1}{2}$

This part of work done by 4 women in 5 hours.

So whole work will be completed by 4 women in = 10 hours

One women will complete it in = 40 hours

$$3 \text{ children will complete it in} = \frac{40 \times 5}{3 \times 3} = \frac{200}{9} \text{ hours}$$

S33. Ans.(b)

Sol. Ratio of efficiency A and B on Tuesday = 3 : 2

Let A and B does $3x$ and $2x$ work in one hour

And B completes work 2 in 9 hours

So, total work = $9 \times 2x = 18x$

A will complete work 2 in $\frac{18x}{3x}$

= 6 hours

So,

$$m = 6$$

Similarly

$$n = \frac{10 \times 4x}{5x} = 8$$

Total x and y will complete the work in

$$= \frac{(8 - 6)(8 + 6)}{(8 - 6) + (8 + 6)}$$

$$= \frac{28}{16}$$

$$= \frac{7}{4} \text{ hours}$$

S34. Ans.(b)

Sol. Let A and B can do $3x$ and $2x$ work in one hour on Monday

$$\text{Then } 80\% \text{ of total work } 1 = \frac{4}{5} (3x + 2x) \times 3 = 12x$$

In 4 hours $10x$ work 1 is completed working alternatively and remaining $2x$ is complete by A on 5th hour

$$\text{So total time} = \left(4 + \frac{2x}{3x}\right) \text{ hours} = \frac{14}{3} \text{ hours}$$

Ratio of efficiency on Friday is 5 : 4

Ratio of time taken to complete work will be 4 : 5

But B completes work 2 in 10 hours on Friday

So, A will complete work 2 in 8 hours on Friday

$$\therefore \text{ Together they will complete work 2 in } = \frac{8 \times 10}{18} = \frac{40}{9} \text{ hours}$$

$$\text{Required percentage} = \frac{\left(\frac{14}{3} - \frac{40}{9}\right)}{\frac{40}{9}} \times 100 = \frac{\frac{42-40}{9}}{\frac{40}{9}} \times 100 = \frac{2}{40} \times 100 = 5\%$$

S35. Ans.(a)

Sol. Let C complete work 2 in x hours

According to question.

$$\frac{2}{10} + \frac{2}{x} = \frac{4}{5}$$

$$\frac{2}{x} = \frac{4}{5} - \frac{1}{5}$$

$$\frac{2}{x} = \frac{3}{5}$$

$$x = \frac{10}{3}$$

Time taken by B to finish work 1 on Friday

$$= \frac{(5 + 4)8}{4}$$

$$= 18 \text{ hours}$$

$$\text{Required percentage} = \frac{10}{3 \times 18} \times 100 = \frac{500}{27} \%$$

S36. Ans.(a)

Sol. Let total quantity of milk = $200x$ L

And total quantity of water = $100x$ L

Total milk in A and B = $(20\% + 15\%) 200x$

$$= 35 \times 2x$$

$$= 70x \text{ L}$$

Total water in A and B = $35 \times x$

$$\text{Total water in F} = 35x + \frac{25}{100} \times \frac{25}{100} \times 100x$$

$$= 35x + 6.25x$$

$$= 41.25x \text{ L}$$

Let cost price of milk per liter be Rs.10

So, cost price of $(70x + 41.25x)$ L of mixture = $70x \times 10$

$$= \text{Rs.}700x$$

Selling price of $(70x + 41.25x)$ L of mixture = $111.25x \times 10$

$$= \text{Rs.}1112.5x$$

$$\% \text{ profit} = \frac{1112.5x - 700x}{700x} \times 100$$

$$= \frac{412.5}{7}$$

$$= \frac{825}{14}$$

$$= 58\frac{13}{14} \%$$

Or we can say that profit is due to the quantity of water in the mixture.

So we can directly write

$$\% \text{ profit} = \frac{41.25x}{70x} \times 100$$

$$= 58\frac{13}{14} \%$$



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S37. Ans.(c)

Sol. Milk in vessel A and C = $\frac{50}{100} \times 2x = x$

Water in vessel A and C = $\frac{55}{100} \times x$

$$= 0.55x$$

Ratio of milk and water in M = $x : 0.55x$

$$= 20 : 11$$

According to question,

$$\Rightarrow \frac{x - \frac{20}{31} \times 62}{55x - \frac{11}{31} \times 62 + 17} = \frac{6}{5}$$

$$\Rightarrow \frac{x - 40}{55x - 5} = \frac{6}{5}$$

$$\Rightarrow 5x - 200 = 3.30x - 30$$

$$x = 100$$

Quantity of milk in vessel B = $\frac{20}{100} \times 2 \times 100$

$$= 40 \text{ L}$$

S38. Ans.(b)

Sol. Let total milk in all 5 vessel = $200x$

And total water in all 5 vessel = $100x$

So,

Total milk in all vessel except C = $\frac{65}{100} \times 200x$

$$= 130x$$

Total water in all vessel except C = $\frac{55}{100} \times 100x$

$$= 55x$$

And

Ratio of milk and water in vessel C = $35 \times 2x : 45x$

$$= 70x : 45x$$

$$= 14 : 9$$

According to question,

$$\frac{130x + \frac{14}{23} \times 115}{55x + \frac{9}{23} \times 115} = \frac{9}{4}$$

$$\frac{130x + 70}{55x + 45} = \frac{9}{4}$$

$$520x + 280 = 495x + 405$$

$$25x = 125$$

$$x = 5$$

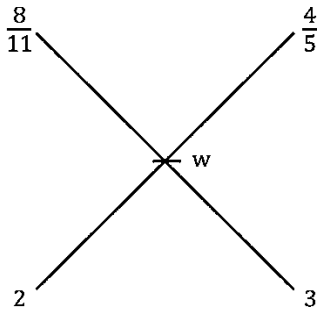
Total quantity of water in all five vessel = $100x = 500 \text{ L}$

S39. Ans.(c)

Sol. Ratio of milk to water in vessel D = $\frac{10}{100} \times 2x : \frac{5}{100} \times x$
 $= 4 : 1$

Ratio of milk to water in vessel E = $\frac{20}{100} \times 2x : \frac{15}{100} \times x$
 $= 8 : 3$

From allegation



$$\frac{2}{3} = \frac{\frac{4}{5} - w}{w - \frac{8}{11}}$$

$$2w - \frac{16}{11} = \frac{12}{5} - 3w$$

$$5w = \frac{12}{5} + \frac{16}{11}$$

$$5w = \frac{132 + 80}{5 \times 11}$$

$$w = \frac{212}{275}$$

$$\text{Required ratio} = \frac{212}{63}$$

**S40. Ans.(d)**

Sol. Quantity of milk and water in vessel C \Rightarrow

$$= \frac{35}{100} \times 2x + \frac{45}{100} \times x$$

$$= 0.7x + 0.45x$$

$$= 1.15x$$

$$1.15x = 115$$

$$x = 100$$

$$\text{Milk and water in B} = \frac{20}{100} \times 200 + \frac{25}{100} \times 100$$

$$= 40 + 25$$

$$= 65$$

$$\text{Milk and water in E} = \frac{20}{100} \times 200 + \frac{15}{100} \times 100$$

$$= 40 + 15$$

$$= 55$$

$$\begin{aligned}\text{Required \%} &= \frac{65-55}{55} \times 100 \\ &= \frac{10}{55} \times 100 \\ &= 18\frac{2}{11}\%\end{aligned}$$

S41. Ans.(b)

Sol. Let speed of boat in still water on Thursday = x

$$\begin{aligned}\frac{12 \times 18}{x-1} &= \frac{16 \times 15}{16+2} \\ \frac{12 \times 18 \times 18}{16 \times 15} &= x-1 \\ x-1 &= 16.2 \\ x &= 17.2 \text{ kmph}\end{aligned}$$

S42. Ans.(c)

Sol. Let speed of boat in still water on Monday = x

$$\begin{aligned}\frac{15 \times 18}{x-2} &= \frac{45}{11} + \frac{16 \times 15}{x+2} \\ 15 \left(\frac{18}{x-2} - \frac{16}{x+2} \right) &= \frac{45}{11} \\ \frac{18}{x-2} - \frac{16}{x+2} &= \frac{3}{11}\end{aligned}$$

If we put x = 20

Then it satisfies the above equation

$$\therefore x = 20 \text{ kmph}$$

S43. Ans.(d)

Sol.

Speed of boat in still water on Tuesday = 15 km/hr

$$66\frac{2}{3}\% = \frac{2}{3}$$

Speed of boat in still water on Wednesday = $15 + \frac{2}{3} \times 15$

= 25 km/hr

$$\begin{aligned}\frac{14 \times 18}{25-x} &= \frac{14 \times 15}{(15+3)} \times \frac{9}{10} \\ \frac{6}{25-x} &= \frac{5}{18} \times \frac{9}{10} \\ \frac{6}{0.25} &= 25-x \\ 25-x &= 24 \\ x &= 1 \text{ km/hr}\end{aligned}$$



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S44. Ans.(a)**Sol.** Given

Speed of boat in still water on Saturday = 21 km/h

$$28\frac{4}{7}\% = \frac{2}{7}$$

$$\therefore \text{Speed of boat in still water on Sunday} = 21 - \frac{2}{7} \times 21$$

$$= 21 - 6 = 15 \text{ kmph}$$

$$\frac{10 \times 18}{21 - x} = \frac{19}{16} \times \frac{10 \times 15}{15 + 4}$$

$$x = 1.8$$

$$\text{Required time} = \frac{57.6}{21 - 1.8}$$

$$= \frac{57.6}{19.2} = 3 \text{ hrs}$$

S45. Ans.(a)**Sol.**

$$\frac{18 \times 18}{x-4} = 2 + \frac{12 \times 15}{17+1}$$

$$18 \times 18 = 12(x-4)$$

$$x - 4 = 27$$

$$x = 31 \text{ kmph}$$

$$\text{Required upstream speed} = 31 - 4 = 27 \text{ kmph}$$

S46. Ans.(c)**Sol.** Let MP of item-II by seller A = 100x \therefore MP of item-II by seller C = 100x

$$\frac{\frac{100}{100+s} \times 68x}{\frac{100}{100+s} \times 84x} = \frac{17}{21}$$

$$\frac{68}{84} \times \frac{96+2s}{100+s} = \frac{17}{21}$$

$$\frac{96+2s}{100+s} = \frac{1}{1}$$

$$96 + 2s = 100 + s$$

$$s = 4$$

S47. Ans.(b)**Sol.** Let mark price of item II = 100x

Let mark price of item III = 100y

$$\therefore 100x + 100y = 6000$$

$$x + y = 60 \dots (i)$$

$$\text{And, } 72x - 84y = 420$$

$$6x - 7y = 35 \dots (ii)$$

From (i) and (ii)

$$y = 25$$

$$x = 35$$

∴ M.P of item II = 3500

M.P. of item III = 2500

$$\begin{aligned}\text{Required \%} &= \frac{3500 - 2500}{2500} \times 100 \\ &= \frac{1000}{25} \\ &= 40\%\end{aligned}$$

S48. Ans.(a)

Sol. Let M.P. of item II = $100a$

∴ S.P. of item II by seller A = $68a$

S.P. of item II by seller B = $(100 - x)a$

Then $(168 - x)a = (3888) \times 2$

$(184 - x)a = 4320 \times 2$

$$\therefore \frac{168 - x}{184 - x} = \frac{9}{10}$$

$$(10 \times 168) - 10x = 9 \times 184 - 9x$$

$$x = 24$$

$$a = 54$$

Now S.P. of item II by seller C = 4536 Rs.

S49. Ans.(e)

Sol. Let S.P. of item I = 500

∴ S.P. of item III = 600

$$\text{C. P. of item I} = \frac{100}{125} \times 500 = 400$$

$$\text{C. P. of item II} = \frac{100}{120} \times 600 = 500$$

$$\text{Profit on item I} = 500 - 400 = 100$$

$$\therefore 100 \rightarrow 750$$

$$1 \rightarrow 7.5$$

$$(200) \rightarrow (200 \times 7.5) = 1500 \text{ Rs.}$$

S50. Ans.(a)

Sol. C.P. = 60 Rs.

$$\text{M. P.} = \frac{200}{300} \times 60 + 60$$

$$= 40 + 60$$


$$= 100$$


$$\text{Total C.P.} = 60 \times 5 = 300 \text{ Rs.}$$

Total selling price should be = 380 Rs.

$$\text{S.P. of item III by seller E} = (380 - 64 - 67 - 86 - 84) = 79$$

$$\therefore \text{Minimum required discount} = (100 - 79) = 21\%$$

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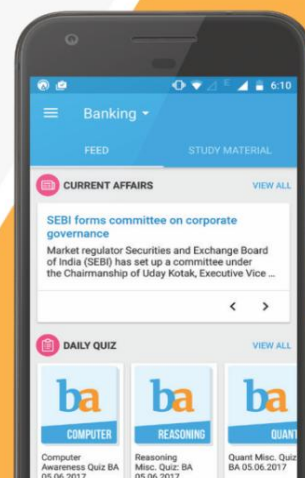
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