Direction (1 to 5): Study the following information carefully and answer the questions given beside:

Four friends, Priyanka, Pinki, Rinki, and Munni start travelling towards a certain distance from the same point and at the same time. The following four pie charts give the information about the percentage of the total distance travelled by them in five different modes of travelling i.e on foot, bicycle, Bike, Car and Rickshaw. Each one travels a different distance in the same time.

**Priyanka**

- Bike: 30%
- Car: 24%
- Bicycle: 12%
- On foot: 16%
- Rickshaw: 18%
On foot 15%
Bicycle 20%
Bike 30%
Rickshaw 15%

Facebook Page    Facebook Group    Telegram Group

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Pinki

On foot 15%
Bicycle 20%
Bike 30%
Rickshaw 15%

Facebook Page    Facebook Group    Telegram Group

www.ambitiousbaba.com

Rinki

On foot 22%
Bicycle 25%
Bike 18%
Car 16%
Richshaw 19%

Facebook Page    Facebook Group    Telegram Group

www.ambitiousbaba.com
The following table provides information about the distance (in km) travelled by each of them on foot as a percentage of the sum of the total distance travelled by them on foot.

<table>
<thead>
<tr>
<th></th>
<th>Priyanka</th>
<th>Pinki</th>
<th>Rinki</th>
<th>Munni</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>20%</td>
<td>30%</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Q1. For who among the following, the distance travelled by her was the least?
A) Priyanka 
B) Pinki 
C) Rinki 
D) Munni 
E) Can't determined

Q2. If the average speed of Priyanka is 45 km/hr and the distance travelled by her on foot is 36 km. Find the difference between the average speed of Priyanka and the average speed of Munni?
A) 90 km/hr 
B) 35 km/hr 
C) 45 km/hr 
D) 54 km/hr 
E) 0 km/hr

Q3. Suppose Pinki starts 1 hour later than all other three start their journey but Priyanka and Pinki complete their respective distance at the same time. The total distance travelled by all of them on foot is 250 km. Find the respective ratio of the average speed of Priyanka and Pinki in this case?
A) 5 : 8 
B) 5 : 6 
C) 6 : 7
Q4. If the total distance travelled by all of them on foot is 300 km. Find the sum of the total distance travelled by all of them by car and by rickshaw?
(Appproximately)
A) 651.82 km
B) 541.32 km
C) 648.42 km
D) 698.45 km
E) 672.80 km

Q5. Each of the two girls Rinki and Munni starts their journey at 10:30 AM but Munni takes 1-hour rest in the middle of the journey but each of them reaches their respective distance at 00:30 AM on the next day. Find the ratio of the respective average speed of Rinki and Munni? (It is given that the average of the total distance travelled by Priyanka and Pinki together on foot is 125 km)
A) 10 : 11
B) 143 : 140
C) 13 : 14
D) 14 : 13
E) 1 : 2

Directions (6 to 9): Study the following information carefully and answer the following questions beside:
Among four persons - Ram, Shayam, Mohan, and Sohan, each does four different tasks A, B, C, and D. The individual efficiency (in units/hr) of each person to complete the task (A, B, C or D) is given in the table below. Study the table and answer the following questions.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ram</td>
<td>75</td>
<td>50</td>
<td>125</td>
<td>150</td>
</tr>
<tr>
<td>Shayam</td>
<td>125</td>
<td>75</td>
<td>75</td>
<td>85</td>
</tr>
<tr>
<td>Mohan</td>
<td>100</td>
<td>125</td>
<td>125</td>
<td>75</td>
</tr>
<tr>
<td>Sohan</td>
<td>175</td>
<td>50</td>
<td>50</td>
<td>175</td>
</tr>
</tbody>
</table>

Q6. Ram and Shayam work only between 01:00 PM and 03:00 PM on a given day. They have to do an equal number of units of each work. i.e. if Ram or Shayam do 100 units of work then it has to be 25 units each of A, B, C, and D. What is the ratio of the maximum units of work that Ram and Shayam can do respectively?
A) 148 : 153
B) 2 : 3
C) 543 : 678
D) 10 : 17
E) None of these
Q7. If 1500 units each of A, B, C, and D are required to be done then who among the following while working alone will take the least time to complete the work?
A) Ram
B) Shayam
C) Mohan
D) Sohan
E) None of these

Q8. If the respective ratio of the total number of units of work of B and C is 3 : 2 and the average of the total number of units of work B and C is 1250 units. Find the difference between the total time taken by Ram and Shayam to finish the tasks B and C individually and the time taken by Mohan and Sohan together to complete the same tasks individually? (approximately)
A) 0.33 hours
B) 1.33 hours
C) 2.33 hours
D) 3.33 hours
E) None of these

Q9. If Ram, Shayam, Mohan and Sohan all work alone for 1 hours and spend equal amount of time on each work then what is the absolute difference between the average of total number of units done by Ram and Shayam together and the average of total number of units of work done by Mohan and Sohan together?
A) 57.5 units
B) 28.75 units
C) 14.375 units
D) 28.25 units
E) None of these

Directions (10 to 14): Study the following information carefully and answer the questions given beside:
The following table gives the partial information about the total individual runs scored by 5 different players Dhoni, Kohli, Rohit, Yuvraj and Raina in 4 different matches (match 1 to match 4) of the IPL session 2018. Each column has two values missing. These are the runs scored by the two lowest scorers in that match. None of the two missing values is more than 10% of the total runs scored in that match.

<table>
<thead>
<tr>
<th>Players</th>
<th>Match 1</th>
<th>Match 2</th>
<th>Match 3</th>
<th>Match 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhoni</td>
<td>100</td>
<td>53</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Kohli</td>
<td>86</td>
<td>74</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Rohit</td>
<td></td>
<td>115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuvraj</td>
<td>72</td>
<td>84</td>
<td>30</td>
<td>55</td>
</tr>
<tr>
<td>Raina</td>
<td>79</td>
<td></td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>300</td>
<td>260</td>
<td>200</td>
</tr>
</tbody>
</table>
Q10. If the difference between the total runs scored by Dhoni and Rohit in 4 matches is the minimum. Find the difference between the total runs scored by Kohli and Raina in 4 matches?
A) 63
B) 70
C) 68
D) 57
E) 65

Q11. What is the total maximum contribution of Dhoni (in percentage) with respect to the total runs scored in the four matches? (approximately)
A) 10.81%
B) 11.81%
C) 12.81%
D) 19.81%
E) 9.81%

Q12. The respective ratio of the total runs scored by Rohit in match1 and match 2 is 5 : 6 and the average of the total runs scored by Rohit in 4 matches is 47. Find the difference of the total runs scored by Raina and Yuvraj in four matches?
A) 63
B) 70
C) 62
D) 57
E) 65

Q13. The players are ranked 1 to 5 on the basis of the total runs scored by them in four matches, with the highest scorer getting the rank 1. It is also given that no two players have scored the same number of total runs. Find the sum of the total maximum runs scored by the first, the second and the third position players in four matches?
A) 633
B) 703
C) 685
D) 689
E) 652

Q14. The maximum possible contribution of Dhoni in four matches is how much percentage more than the minimum possible contribution of Raina in four matches? (approximately)
A) 6.51%
B) 7.51%
C) 6.51%
D) 7.51%
E) 17.51%

Direction (15 to 19) : Study the given information carefully and answer the following questions beside:
Six friends, A, B, C, D, E, and F invested some money in business. The following tabular column gives the information about the profit made by them (in thousands) in the first six months of the year 2017. Study the chart and answer the following questions.

<table>
<thead>
<tr>
<th>Friends/Months</th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>51.65</td>
<td>54.95</td>
<td>89.95</td>
<td>71.95</td>
<td>89.10</td>
<td>43.25</td>
</tr>
<tr>
<td>B</td>
<td>54.25</td>
<td>56.85</td>
<td>65.15</td>
<td>91.25</td>
<td>21.65</td>
<td>41.15</td>
</tr>
<tr>
<td>C</td>
<td>67.15</td>
<td>51.15</td>
<td>34.15</td>
<td>84.15</td>
<td>56.25</td>
<td>43.65</td>
</tr>
<tr>
<td>D</td>
<td>43.15</td>
<td>53.25</td>
<td>56.95</td>
<td>51.55</td>
<td>56.10</td>
<td>76.15</td>
</tr>
<tr>
<td>E</td>
<td>44.85</td>
<td>67.35</td>
<td>84.85</td>
<td>34.25</td>
<td>67.15</td>
<td>81.30</td>
</tr>
<tr>
<td>F</td>
<td>57.25</td>
<td>87.15</td>
<td>82.15</td>
<td>21.15</td>
<td>56.25</td>
<td>65.40</td>
</tr>
</tbody>
</table>

Q15. What is the absolute difference between the total profit earned by all the friends in the months of Feb and the total profit earned by all the friends in the months of June (in thousands)?
   A) 12.8
   B) 10.8
   C) 19.8
   D) 11.8
   E) 9.8

Q16. In the months of June each friend invested Rs. 160 thousand and in the month of May each friend invested Rs. 150 thousand then the profit earned by them in the month of May and June together is approximately what percent of the total investments in the months of May and June together?
   A) 32.5%
   B) 30.5%
   C) 28.5%
   D) 37.5%
   E) 26.5%

Q17. The total profit made by C and D together in the month of March and April is what percent of the profit made by E and F together in the month of Jan and Feb? (approximately)
   A) 81.32%
   B) 87.3%
   C) 88.39%
   D) 76.8%
   E) 78.2%

Q18. What is the difference between the total profits earned by B, C, and D together in the month of Feb, March and April together and the total profits earned by A, E and F together in the months of Jan, May and June together (thousand)?
   A) 7.75
Q19. What is the respective ratio between the total profit earned by A over the given six months and the total profit earned by F over the given six months?
A) 8012 : 4567
B) 8017 : 4235
C) 8013 : 4456
D) 8017 : 7387
E) 8017 : 7347

Directions (20 to 24) : Study the following bar chart carefully and answer the questions given beside.

The graph below provides the number of male employees (in lakhs) and the number of female employees (in lakhs) in each of seven subsidiaries viz. ECL, BCCL, CCL, WCL, SECL, NCC and NCL - of Coal India limited. The males and females in any subsidiary comprise the total workforce of that subsidiary and the total workforce population of the seven subsidiaries together is equal to the one fourth population of the country.

Q20. For how many subsidiaries is the percentage of population of that subsidiary less than 14.5% of the one by fourth part of the country’s population?
Q21. For how many subsidiaries is the ratio of the number of females to the number of males less than that for the one by fourth part of the country?
A) 1
B) 0
C) 3
D) 4
E) 5

Q22. If, in each subsidiary, exactly 60% of the males and 40% of the females are literate, which subsidiary has the third highest illiterate population?
A) ECL
B) NCC
C) CCL
D) NCL
E) WCl

Q23. If it is given that there are no widows or widowers in the seven subsidiary then, For how many subsidiary is it possible that the population of the unmarried persons in the subsidiary is less than 10% of the population of the subsidiary?
A) ECL & CCL
B) CCL & NCC
C) NCC & ECl
D) CCL & WCl
E) ECL & NCL

Q24. For which subsidiary/subsidiary is the number of males as a percentage of the total number of males out of one fourth population of the country less than 13.25%?
A) ECL & NCL SCEL
B) ECL, BCCL CCL
C) none of these
D) CCL & WCl
E) ECL, BCC & SCEL

Directions (25 to 29) : Study the following table charts carefully and answer the questions given beside.
Sitaram Yechuri invested certain amounts in a Market Based SIP on the first working day of every month beginning in January 2017. The amounts that she invested and the Net Asset Value (NAV) of 1 unit of the SIP on the day of investment are shown in the bar graph.

Number of units purchased = Amount invested in Rupees
NAV on the day of investment

Bar chart shows different amount invested and Line chart shows the NAV in various months.

Note: Decimal values of units purchased are not to be considered.
Q25. **Mayawati invested an amount equal to Sitaram’s total investment in March. How many more or less units than Sitaram did Mayawati get?**  
A) 35 units  
B) 40 units  
C) 25 units  
D) 20 units  
E) 24 units  

Q26. **Find the percentage difference in the total amount that Sitaram invested in the year and the amount that he earned by selling all his units on the last working day of the year.**  
A) 14.1%  
B) 16.1%  
C) 12.1%  
D) 19.1%  
E) 12.11%  

Q27. **Had Sitaram invested an equal amount every month, what would be the percentage difference between the total amount invested in the year and the amount that he would earn or lose by selling all his units on the last working day of the year?**  
A) 12.25%  
B) 15.25%
Q28. Suresh Prabhu invested the entire amount that Sitaram invested in a fixed deposit offering 10% interest per annum compounded semi-annually for a year. This fixed deposit matured on the last working day of the year. Assuming that Sitaram sold his units on the last working day of the year, how much more/less than Suresh did Sitaram earn?
A) 11322.8 Rs.
B) 11562.2 Rs.
C) 11332.8 Rs.
D) 11298.2 Rs.
E) 10832.2 Rs.

Q29. The NAV of the SIP was 10.0 on the first working day of Jan 2018. The percentage growth in NAV from Jan 2018 to Dec 2018 was projected to be the same as it was from April 2017 to Nov 2017. How much would Sitaram earn if he sells all his units in Dec 2018 without buying any units in 2018?
A) Rs. 1026
B) Rs. 1138
C) Rs. 1136
D) Rs. 1120
E) Rs. 1116

Directions (30 – 34) : Study the following table chart carefully and answer the questions given besides.
The villages of Nawada district are classified into six categories, A through F, based on their population. The following table gives the number of villages in the district belonging to different categories in the years 2006 and 2016.

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
<th>Number of village in 2006</th>
<th>Number of village in 2016</th>
<th>Ratio of male to female</th>
<th>Percentage of adult</th>
<th>Literacy rate among adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt; 200</td>
<td>104</td>
<td>92</td>
<td>5 : 3</td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>B</td>
<td>200 – 500</td>
<td>141</td>
<td>127</td>
<td>2 : 5</td>
<td>50</td>
<td>50%</td>
</tr>
<tr>
<td>C</td>
<td>501 – 1000</td>
<td>145</td>
<td>144</td>
<td>5 : 3</td>
<td>60</td>
<td>40%</td>
</tr>
<tr>
<td>D</td>
<td>1001 – 2000</td>
<td>110</td>
<td>129</td>
<td>3 : 2</td>
<td>60</td>
<td>40%</td>
</tr>
<tr>
<td>E</td>
<td>2001 – 5000</td>
<td>62</td>
<td>80</td>
<td>6 : 7</td>
<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 5000</td>
<td>13</td>
<td>18</td>
<td>8 : 1</td>
<td>40</td>
<td>50%</td>
</tr>
</tbody>
</table>

Note: The ratio of literacy for males to females in every category is the same as the ratio of population of males to females given in the table.
Q30. Find the population of category F village if 20% of adult female literate are doctor, 20% of rest adult female literate are engineer, 25% of rest adult female literate are teacher and remaining 528 of adult female literate are CA.
A) 49500
B) 49568
C) 48765
D) 48662
E) 48113

Q31. The total population of which of the following Categories of villages can never be equal in the given years?
A) C & D
B) B & C
C) E & A
D) F & E
E) A & E

Q32. Find the population each village of category D in 2006 if there are 15840 adult female are literate in category D
A) 1200
B) 1500
C) 1000
D) 800
E) 400

Q33. In 2016, the total population in category B villages was at least what percentage of the total population in category E villages?
A) 6.35%
B) 6.50 %
C) 6.75%
D) 6.15%
E) 6.12%

Q34. If the total population in category D villages in 2016 was less than that in 2006, and then the average population of category D villages in 2006 was at least
A) 1171.9
B) 1173.9
C) 1169.3
D) 1172.2
E) 1283.9

Directions (35 –39) : Study the following table chart carefully and answer the questions given beside.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price per Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice BASMATI</td>
<td>16.50</td>
</tr>
<tr>
<td>Rice SONAM</td>
<td>22.50</td>
</tr>
</tbody>
</table>
Q35. In what ratio a shopkeeper should mix rice BASMATI and rice SONAM so that by selling the mixture at Rs. 24.12 he gains 20%?

A) 2: 3  
B) 2 : 5  
C) 2 : 7  
D) 2 : 1  
E) 2 : 9

Q36. Saurav purchased 25 kgs of rice BASMATI and 35 kg of rice SONAM. He mixed the two and sold the mixture. Approx., at what price per kg did he sell the mixture to make a profit 25% more than the profit percent he gets by selling a mixture of 30 kgs of rice INGIA GATE and same quantity of rice BEST at Rs. 18.60 per kg?

A) 20 Rs.  
B) 25 Rs.  
C) 30 Rs.  
D) 35 Rs.  
E) 40 Rs.

Q37. Saurav added certain quantity of Fortune oil with 60 kg of Shaktiman sugar, so that there is neither gain nor loss when the mixture is sold at a price P which is Rs 1.70 more than the price at which the mixture of Marygold biscuit and Kitkat biscuit is sold when they are mixed in the ratio 3 : 2 respectively to gain 25% profit. Find the quantity of Fortune oil used initially?

A) 40 kg  
B) 35 kg  
C) 30 kg  
D) 20 kg  
E) 15 kg

Q38. Saurav purchases 30 kgs of Dhani oil and Q kgs Olive oil, at what price (approx.) he should sell the mixture of the two so as to gain 30% profit. If the value of Q is 1/4th the quantity of Shaktiman sugar worth rs 6.75 per kg added with 120 kgs worth of Rs 8 per kg, to gain a profit of Rs 1.5 per kg by selling it at Rs 9 per kg?
Q39. Shopkeeper mark Ghee at 20% above the cost price, and also a discount of 20% but use 800gm instead of 1 kg find overall profit or loss percentage
A) 20%
B) 15%
C) 10%
D) 12%
E) 16%

Directions (40 to 44) : Study the following pie, line and table chart carefully and answer the questions given beside.
A person travels daily for eight hours for 5 days to cover a certain distance. The following pie chart shows the percentage of total distance travelled by him in 5 different modes on day1 (M1, M2, M3, M4, and M5) and the percentage of distance travelled by him with the same modes remained the same as shown in the pie diagram, from day 1 to day 5.

The following line graph shows the speed of M5 during the five days.
Further, the below data table gives the information about the percentage of total time taken on each day to travel by Mode 5 (M5).

<table>
<thead>
<tr>
<th>Day</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>6.25%</td>
<td>12.5%</td>
<td>3.125%</td>
<td>8.33%</td>
<td>16.67%</td>
</tr>
</tbody>
</table>

Q40. What is the sum of the total distance travelled by the person during the give five days?
A) 2033 $\frac{1}{3}$ km  
B) 2133 $\frac{1}{3}$ km  
C) 1833 $\frac{1}{3}$ km  
D) 1933 $\frac{1}{3}$ km  
E) 1833 $\frac{1}{3}$ km

Q41. What is difference between the total distance travelled by Mode2 (M2) in the five days and the total distance travelled by Mode 3 (M3) in the five days?
A) $\frac{550}{3}$ km  
B) $\frac{650}{3}$ km  
C) $\frac{755}{3}$ km  
D) $\frac{640}{3}$ 3km
Q42. The average speed of the person during the first two days is approximately what percent of the average speed of the person during the last three days?
A) 51.33%
B) 53.33%
C) 47.33%
D) 42.333%
E) 31.33%

Q43. Suppose, the person spends 25% of the total time on each day to travel by M1 then the average speed of M1 during the five days is approximately what percent less than the average speed of M5 during the five days?
A) 70%
B) 70%
C) 65%
D) 75%
E) 60%

Q44. What would have been the difference between the average speed of M3 during the five days and the average speed of M4 during the five days?
A) 5
B) 8
C) 9
D) 7
E) Can’t determine

Directions (45 to 49) : Study the following bar chart carefully and answer the questions given beside.
The following graph gives the information about the daily water supply (in 000) in a water tank by three different pipes Pipe A, Pipe B, and Pipe C from Jan 1 to Jan 7. The efficiency of Pipe A is 80% of the efficiency of Pipe B and the efficiency of Pipe C is 12.5% less than the efficiency of Pipe A and on July 1, they together operated for 8 hours 35 minutes.
Q45. From Jan 1 to Jan 7, what is the difference (in hours) between the total number of hours Pipe A operated and the total number of hours Pipe B operated? (approximately)
A) 9 hr 31 minutes
B) 8 hr 28 minutes
C) 11 hr 37 minutes
D) 7 hr 28 minutes
E) 6 hr 31 minutes

Q46. Suppose, the capacity of tank is 4500 thousand litres and another pipe D withdraws water at the rate of 150 thousand per hour and then if all the four pipes operate together then in how many hours they can fill the empty tank?
A) 30 hours
B) 28 hours
C) 21 hours
D) 15 hours
E) 12 hours

Q47. From Jan 1 to Jan 7, for how many hours did pipe C operate? (approximately)
A) 68 hours 9 minutes
B) 61 hours 3 minutes
C) 51 hours 2 minutes
D) 49 hours 1 minute
E) 47 hours 5 minutes

Q48. Suppose, Pipe A operates at 25% more than its efficiency and Pipe B operates at 20% less than its efficiency. If all the three pipes operate together from Jan 1 to Jan 7 then for how many hours will they operate?
A) 51 hours
B) 61 hours
Q49. If one more inlet pipe E is opened then all the four pipes operate together for 52 hours from Jan 1 to Jan 7 then the efficiency of pipe E is approximately what percent of the efficiency of pipe B?
A) 26.5%
B) 27.5%
C) 20.5%
D) 21.5%
E) 23.5%

Solution

Q1. Ans (C)
Explanation:
The total distance travelled by them on foot = x km

The total distance travelled by Priyanka on foot = 20% of x

= \( \frac{x}{5} \) km = 16% of the total distance travelled by her

\( \frac{x}{5} = 16\% \) of the total distance travelled by Priyanka

By solving

The total distance travelled by Priyanka = \( \frac{5x}{4} = 1.25 \times \) km

Similarly, the total distance travelled by Pinki = 2x km

The total distance travelled by Rinki = \( 25 \times \frac{x}{22} = 1.14x \) km

The total distance travelled by Munni = \( \frac{5x}{4} = 1.25x \) km

Required answer = Rinki

Hence, option C is correct.

Q2. Ans(E)
Explanation:
The distance travelled by Priyanka on foot = 16% of the total distance = 36 km

The total distance travelled by Priyanka = 225 km

Average speed = 45 km/hr,

Total time = \( \frac{225}{45} \) = 5 hours............(i)

From the table, 36 km = 20% of the total distance travelled by all of them on foot

The total distance travelled by Munni on foot = 25% of the total distance travelled by all of them on foot

Since, 20% = 36 therefore,

25% = 36 × \( \frac{25}{20} \) = 45 km

From the pie chart, 45 km = 20% of the total distance travelled by Munni

The total distance travelled by Munni

= 45 × \( \frac{100}{20} \) = 225 km

In the question, it is given that each of them takes equal time, so from the equation (i) even Munni will take 5 hours

Average speed of Munni = \( \frac{225}{5} \) = 45 km/hr

Required difference = 45 – 45 = 0 km/hr

Hence, option E is correct.

Q3. Ans(E)

Explanation:
Let the time taken by Pinki = x hours

Then according to the question, the time taken by Priyanka = x + 1 hours

Now, For Priyanka

20% of the total distance travelled by all of them on foot = 16% of the total distance
travelled by Priyanka

20% of 250 = 16% of the total distance travelled by Priyanka

By solving, the total distance travelled by Priyanka = 312.5 km

Average speed = \[ \frac{312.5}{(x + 1)} \] km/hr

Similarly for Pinki,

30% of the total distance travelled by all of them on foot = 15% of the total distance travelled by Pinki

By solving, the total distance travelled by Pinki = 500 km

Average speed = \[ \frac{500}{x} \] km/hr

Required Ratio = \[ \frac{312.5}{(x + 1)} : \frac{500}{x} \] km/hr

Since it is not possible to determine the value of x so ratio can't be determined

Hence, option E is correct.

Q4. Ans(A)

Explanation:

The total distance travelled by all of them on foot is 300 km

For Priyanka,

The total distance travelled by Priyanka on foot = 20% of the total distance travelled by all of them on foot = 20% of 300 = 60 km

16% of the total distance travelled by Priyanka = 60 km
The total distance travelled by Priyanka by car and by rickshaw = (18 + 24) % of the total distance 16% = 60 so the value of 42% = 60 × \frac{42}{16} = 157.5 km

Similarly, For Pinki,
30% of 300 = 15% of the total distance travelled by her

15% = 90
So, (20 + 15)% = 35%
= 90 × \frac{35}{15} = 210 km
For Rinki,
25% of 300 = 22% of the total distance travelled by her 22% = 75 km
So, (19 + 16)% = 35%
= 75 × \frac{35}{22} = 119.32 km
For Munni,
25% of 300 = 20% of the total distance travelled by her 20% = 75 km
So, (26 + 18)% = 44%
= 75 × \frac{44}{20} = 165 km

The required sum = 157.5 + 210 + 119.32 + 165 = 651.82 km

Hence, option A is correct.

Q5. Ans(A)

Explanation:
The sum of the total distance travelled by Priyanka and Pinki together on foot is 125 × 2 = 250 km

From the data table, the sum of the total distance travelled by Priyanka and Pinki together on foot = (20 + 30) % of the total distance travelled by all of them on foot
50% of the total distance travelled by all of them on foot = 250 km
the total distance travelled by all of them on foot

= 250 × \(\frac{100}{50}\) = 500 km

the total distance travelled by Rinki on foot = 25% of 500 = 125 km = 22% of the total distance travelled by her 22% of the total distance = 125

Total distance = 125 × \(\frac{100}{22}\)

Total time taken by her = 14 hrs

Speed = \(\frac{125 \times 100}{14 \times 22}\) km/hr

the total distance travelled by Munni on foot = 25% of 500 = 125 km = 20% of the total distance travelled by her 20% of the total distance = 125

Total distance = 125 × \(\frac{100}{20}\)

Total time taken by her = 14 hrs

Speed = \(\frac{125 \times 100}{20 \times 14}\)

The required Ratio = \(\frac{125 \times 100}{14 \times 22}\) : \(\frac{125 \times 100}{14 \times 20}\) = 10 : 11

Hence, option A is correct.

Q6. Ans(A)

Explanations:
Ram and Shayam work for 2 hours.
We need to find the ratio of the number of maximum units of work Ram and Shayam can work
Let Ram do 4x units of work then according to the question he will do x units of each work

then

\[x + x + x + x = 2\]
Let Shayam do 4y units of work then according to the question he will do y units of each work then

\[
\frac{y}{125} + \frac{y}{75} + \frac{y}{75} + \frac{y}{85} = 2
\]

\[
\frac{51y + 85y + 85y + 75y}{6375} = 2
\]

\[
296y = 12750
\]

\[
y = \frac{12750}{296}
\]

The required Ratio = \(\frac{125}{3} : \frac{12750}{296} = 148 : 153\)

Hence, option A is correct.

Q7. Ans(C)

Explanation:

The total time taken by Ram

\[
= 1500 + 1500 + 1500 + 1500 = 20 + 30 + 12 + 10 = 72 \text{ hours}
\]

The total time taken by Shayam

\[
= 1500 + 1500 + 1500 + 1500 = 12 + 20 + 20 + 17.65 = 69.65 \text{ hours (Approximately)}
\]

The total time taken by Mohan

\[
= 1500 + 1500 + 1500 + 1500 = 15 + 12 + 12 + 20 = 59 \text{ hours}
\]
The total time taken by Sohan
\[ \frac{1500}{175} + \frac{1500}{50} + \frac{1500}{50} + \frac{1500}{175} = 8.57 + 30 + 30 + 8.57 = 77.14 \text{ hours (Approximately)} \]

Hence, option C is correct.

Q8. Ans(B)

**Explanation:**

The total number of units of work B and C is 1250 \times 2 \text{ units} = 2500 \text{ units}

Therefore, B = \( \frac{3}{5} \times 2500 = 1500 \) and C = \( \frac{2}{5} \times 2500 = 1000 \)

The time taken by Ram and Shayam individually
\[ \frac{1500}{50} + \frac{1500}{75} + \frac{1000}{125} + \frac{1000}{75} = 30 + 20 + 8 + 13.33 = 71.33 \text{ hours (approximately)} \]

The time taken by Mohan and Sohan individually
\[ \frac{1500}{125} + \frac{1500}{50} + \frac{1000}{125} + \frac{1000}{50} = 12 + 30 + 8 + 20 = 70 \text{ hours} \]

The required difference = 71.33 – 70 = 1.33 hours (approximately)

Hence, option B is correct.

Q9. Ans(C)

**Explanation:**

If they spend equal amount of time on each work then they will spend \( \frac{60}{4} = 15 \) minutes on each work.

Ram work for 15 minutes i.e. \( \frac{1}{4} \text{ hour} \) on each work then total number of units of work are done by him
\[ \frac{75}{4} + \frac{50}{4} + \frac{125}{4} + \frac{150}{4} = \frac{400}{4} = 100 \text{ units} \]

Shayam work for 15 minutes i.e. 1 hour on each work then total number of units of work are done by him
The average of the total number of units of work done by Ram and Shayam together
\[
\frac{100 + 90}{2} = \frac{190}{2} = 95 \text{ units}
\]

Mohan work for 15 minutes i.e. 1/4 hour on each work then total number of units of work are done by him
\[
\frac{100}{4} + \frac{125}{4} + \frac{125}{4} + \frac{75}{4} = \frac{425}{4} = 106.25
\]

Sohan work for 15 minutes i.e. 1/4 hour on each work then the total number of units of work are done by him
\[
\frac{175}{4} + \frac{50}{4} + \frac{50}{4} + \frac{175}{4} = \frac{450}{4} = 112.5
\]

The average of the total number of units of work done by Mohan and Sohan together
\[
\frac{106.25 + 112.5}{2} = \frac{218.75}{2} = 109.375 \text{ units}
\]

The required difference = 109.375 – 95 = 14.375 units

Hence, option C is correct.

Q10. Ans(A)

Explanation:

Let us analyse the scores of Match1

The total runs scored by Kohli, Yuvraj and Raina together = 237

The total runs scored by Dhoni and Rohit = 290 – 237 = 53

The maximum values of two missing values can be 10% of 290 = 29 but sum should be 53

If Dhoni's scores = 29

Then Rohit's score = 24

So, the range of Dhoni’s and Rohit’s score will be in between 29 and 24
Match2,

The total runs scored by Dhoni, Kohli, and Yuvraj together = 100 + 74 + 84 = 258

The sum of the total runs scored by Rohit and Raina = 300 – 258 = 42

The maximum values of two missing values can be 10% of 300 = 30 but sum should be 42

So, the range of the Rohit’s and Raina’s score will be in between 30 and 12

Match3

The total runs scored by Rohit, Yuvraj and Raina Together = 115 + 30 + 68 = 213

The sum of the total runs scored by Dhoni and Kohli = 260 – 213 = 47

The maximum values of two missing values can be 10% of 260 = 26 but sum should be 47

So, the range of the Dhoni’s and Kohli’s score will be in between 21 and 26

Match4

The total runs scored by Dhoni, Kohli and Yuvraj together = 53 + 54 + 55 = 162

The sum of the total runs scored by Rohit and Raina = 200 – 162 = 38

The maximum values of two missing values can be 10% of 200 = 20 but sum should be 38

So, the range of Rohit’s and Raina’s score will be in between 20 and 18

<table>
<thead>
<tr>
<th>Players</th>
<th>Match 1</th>
<th>Match 2</th>
<th>Match 3</th>
<th>Match 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhoni</td>
<td>29 – 24</td>
<td>100</td>
<td>21 – 26</td>
<td>53</td>
</tr>
<tr>
<td>Kohli</td>
<td>86</td>
<td>74</td>
<td>21 – 26</td>
<td>54</td>
</tr>
<tr>
<td>Rohit</td>
<td>29 – 24</td>
<td>30 – 12</td>
<td>115</td>
<td>20 – 18</td>
</tr>
<tr>
<td>Yuvraj</td>
<td>72</td>
<td>84</td>
<td>30</td>
<td>55</td>
</tr>
<tr>
<td>Raina</td>
<td>79</td>
<td>30 – 12</td>
<td>68</td>
<td>20 – 18</td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>300</td>
<td>260</td>
<td>200</td>
</tr>
</tbody>
</table>

Minimum possible total runs scored by Dhoni in 4 matches = 24 + 100 + 21 + 53 = 198
In such case the maximum possible total runs scored by Rohit in 4 matches = \( 29 + 30 + 115 + 20 = 194 \)

Difference = \( 198 - 194 = 4 \) (minimum)

Subsequently, the total runs scored by Kohli in 4 matches = \( 86 + 74 + 26 + 54 = 240 \)

And the total runs scored by Raina in 4 matches = \( 79 + 12 + 68 + 18 = 177 \)

Required Difference = 63

Hence, option A is correct.

**Q11. Ans(D)**

**Explanation:**

<table>
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<tr>
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<td><strong>Total</strong></td>
<td>290</td>
<td>300</td>
<td>260</td>
<td>200</td>
</tr>
</tbody>
</table>

The maximum possible contribution of Dhoni in four matches = \( 29 + 100 + 26 + 53 = 208 \)

The total runs scored in four matches = \( 290 + 300 + 260 + 200 = 1050 \)

Reqd. % = \( \frac{208 \times 100}{1050} = 19.81\% \) (approximately)

Hence, option D is correct.

**Q12. Ans(C)**

**Explanation:**

<table>
<thead>
<tr>
<th>Players</th>
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<th>Match 3</th>
<th>Match 4</th>
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<tbody>
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<td>Kohli</td>
<td>86</td>
<td>74</td>
<td>21 – 26</td>
<td>54</td>
</tr>
</tbody>
</table>
The respective ratio of the total runs scored by Rohit in match1 and match 2 is 5 : 6

Values of runs will always be an integer so in match 1 the possible runs scored by Rohit = multiple of 5 = 25

Since The respective ratio of the total runs scored by Rohit in match1 and match 2 is 5 : 6

So, the total runs scored by Rohit in match 2 = 5 × 6 = 30

The sum of the total runs scored by Rohit in 4 matches = 47 × 4 = 188

The runs scored by Rohit in match4 = 188 – (25 + 30 + 115) = 188 – 170 = 18

Total runs scored by Raina in 4 matches = 79 + 12 + 68 + 20 = 179

The total runs scored by Yuvraj in 4 matches = 72 + 84 + 30 + 55 = 241

Required difference = 241 – 179 = 62

Hence, option C is correct.

Q13. Ans(D)

Explanation:

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<tr>
<th>Players</th>
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<td>Raina</td>
<td>79</td>
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<td>68</td>
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</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>300</td>
<td>260</td>
<td>200</td>
</tr>
</tbody>
</table>

The Range of Dhoni's scores = in between (29 + 100 + 26 + 53) and (24 + 100 + 21 + 53) = (208 – 198)

The range of Kohli’s scores = in between (86 + 74 + 26 + 54) and (86 + 74 + 21 + 54) =
The range of Rohit's scores = in between (29 + 30 + 115 + 20) and (24 + 12 + 115 + 18) = (194 – 169)

Yuvraj's scores = 72 + 84 + 30 + 55 = 241

The range of Raina's scores = in between (79 + 30 + 68 + 20) and (79 + 12 + 68 + 18) = (197 – 177)

Yuvraj will be on the first position and Kohli will be on the second position and Dhoni will be in the third position

Total maximum possible runs scored by the first, the second and the last position players = 241 + 240 + 208 = 689

Hence, option D is correct.

Q14. Ans(E)

Explanation:

<table>
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<tr>
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<td>Rohit</td>
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<tr>
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<td>290</td>
<td>300</td>
<td>260</td>
<td>200</td>
</tr>
</tbody>
</table>

The maximum possible contribution of Dhoni in four matches = 29 + 100 + 26 + 53 = 208

The minimum possible contribution of Raina in four matches = 79 + 12 + 68 + 18 = 177

Reqd. % = \(\frac{(208 - 177) \times 100}{177}\) = 17.51% (approximately)

Hence, option E is correct.

Q15. Ans(C)
The total profit earned by all the friends in the month of Feb = 370.7

The total profit earned by all the friends in the month of June = 350.9

The required difference = (370.7 - 350.9) = 19.8 thousands

Hence, option C is correct.

Q16. Ans(D)
Sol.
The total investments by 6 friends May and June together = (160 + 150) × 6 = 1860 thousands

The total profit earned in the month of May and June together = 346.5 + 350.9 = 697.4 thousands

The reqd. % = \(\frac{697.4}{1860} \times 100\) = 37.5% approximately

Hence, option D is correct.

Q17. Ans(C)
Explanation:

The total profit made by C and D together in month March and April = 34.15 + 84.15 + 56.95 + 51.55 = 226.8

The profit made by E and F together in month Jan and Feb = 44.85 + 67.35 + 57.25 + 87.15 = 256.6

Reqd. % = \(\frac{226.8}{256.6} \times 100\) = 88.39% approximately

Hence, option C is correct.

Q18. Ans(C)
Explanation:

The total profits earned by B, C, and D together in the month of Feb, March and April together = 544.45 thousand
The total profits earned by A, E and F together in the months of Jan, May and June = 556.2 thousand

Required difference = 556.2 – 544.45 = 11.75 thousand

Hence, option C is correct.

Q19. Ans(D)
Explanation:

The total profit earned by A over the given six months = 400.85 thousand
the total profit earned by F over the given six months = 369.35 thousand

Required ratio = 400.85 : 369.35 = 8017 : 7387

Hence, option D is correct.

Q20. Ans(D)
Explanation:

The populations (in lakhs) of the subsidiary are tabulated below.

<table>
<thead>
<tr>
<th>Subsidiary name</th>
<th>Populations (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECL</td>
<td>(26.5 + 32.5) = 59.0</td>
</tr>
<tr>
<td>BCCL</td>
<td>(25.1 + 20.5) = 45.6</td>
</tr>
<tr>
<td>CCL</td>
<td>(32.5 + 30.2) = 62.7</td>
</tr>
<tr>
<td>WCL</td>
<td>(38.5 + 32.8) = 71.3</td>
</tr>
<tr>
<td>SCEL</td>
<td>(24.5 + 31.2) = 55.7</td>
</tr>
<tr>
<td>NCC</td>
<td>(38.7 + 24.9) = 63.6</td>
</tr>
<tr>
<td>NCL</td>
<td>(36.4 + 23.7) = 60.1</td>
</tr>
<tr>
<td>Total</td>
<td>418</td>
</tr>
</tbody>
</table>
The total population of the one by fourth part of the country = 418 lakhs

14.5% of the one by fourth part of the country’s populations = (0.145 × 418) = 60.61 lakhs

The subsidiary which have less than 14.5% of the one by fourth part of the country’s population, i.e., which have less than 60.61 lakhs are ECL, BCCL, SCEL and NCL.

Hence, number of subsidiary = 4

Hence, option D is correct.

Q21. Ans(D)

Explanation:

<table>
<thead>
<tr>
<th>Subsidiary name</th>
<th>Number of males (in lakhs)</th>
<th>Number of females (in lakhs)</th>
<th>Number of females : Number of males</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECL</td>
<td>26.5</td>
<td>32.5</td>
<td>1.22</td>
</tr>
<tr>
<td>BCCL</td>
<td>25.1</td>
<td>20.5</td>
<td>0.81</td>
</tr>
<tr>
<td>CCL</td>
<td>32.5</td>
<td>30.2</td>
<td>0.92</td>
</tr>
<tr>
<td>WCL</td>
<td>38.5</td>
<td>32.8</td>
<td>0.85</td>
</tr>
<tr>
<td>SCEL</td>
<td>24.5</td>
<td>31.2</td>
<td>1.27</td>
</tr>
<tr>
<td>NCC</td>
<td>38.7</td>
<td>24.9</td>
<td>0.64</td>
</tr>
<tr>
<td>NCL</td>
<td>36.4</td>
<td>23.7</td>
<td>0.65</td>
</tr>
<tr>
<td>Total</td>
<td>222.2</td>
<td>195.8</td>
<td>0.88</td>
</tr>
</tbody>
</table>

The total number of males in the one by fourth part of the country = 222.2 lakhs

The total number of females in the one by fourth part of the country = 195.8 lakhs

Ratio of the number of females in the one by fourth part of the country to that of males = 0.88

We can observe from the table that for ECL and SCEL, the ratio is greater than 1.

For CCL, the ratio is 0.92, which is greater than the required ratio.

For all the other subsidiary viz. BCCL, WCL, NCC and NCL, the ratio is less than 0.88.
Hence, option D is correct.

Q22. Ans(B)  
Explanation:

Number of illiterates in subsidiary ECL = \((0.4 \times 26.5 + 0.6 \times 32.5)\) = 30.1
Number of illiterates in subsidiary BCCL = \((0.4 \times 25.1 + 0.6 \times 20.5)\) = 22.34
Number of illiterates in subsidiary CCL = \((0.4 \times 32.5 + 0.6 \times 30.2)\) = 31.12
Number of illiterates in subsidiary WCL = \((0.4 \times 38.5 + 0.6 \times 38.8)\) = 35.08
Number of illiterates in subsidiary SCEL = \((0.4 \times 24.5 + 0.6 \times 31.2)\) = 28.52
Number of illiterates in subsidiary NCC = \((0.4 \times 38.7 + 0.6 \times 24.9)\) = 30.42
Number of illiterates in subsidiary NCL = \((0.4 \times 36.4 + 0.6 \times 23.7)\) = 28.78

Hence, the third highest number of illiterates are in NCC.

Hence, option B is correct.

Q23. Ans(D) 
Explanation:

In Subsidiary ECL, since there are 26.5 lakhs males and 32.5 lakhs females, there can be a maximum of 26.5 lakhs married couples, a total of \((26.5 \times 2) = 53\) lakhs married persons. Hence, the remaining \((32.5 - 26.5) = 6\) lakhs persons will be unmarried. This is the minimum number of persons who will be unmarried.

Now,

<table>
<thead>
<tr>
<th>Subsidiary name</th>
<th>Number of males (in lakhs)</th>
<th>Number of females (in lakhs)</th>
<th>Minimum number of unmarried person</th>
<th>10% population of the subsidiary</th>
</tr>
</thead>
</table>
Comparing the Minimum Number of unmarried persons with 10% population of the subsidiary of each subsidiary, we can conclude that only in subsidiary CCL and subsidiary WCL has the number of unmarried persons are less than that of 10% of the population of the subsidiary.

Hence, option D is correct.

Q24. Ans(E)

Explanation:

Total number of males in the one fourth part of the country = 222.2 lakhs

13.25% of total number of males in one fourth population of the country

\[ \frac{222.2 \times 13.25}{100} = 29.44 \text{ lakhs} \]

<table>
<thead>
<tr>
<th>Subsidiary name</th>
<th>Male populations (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECL</td>
<td>26.5 (less than 29.44 lakhs)</td>
</tr>
<tr>
<td>BCCL</td>
<td>25.1 (less than 29.44 lakhs)</td>
</tr>
<tr>
<td>CCL</td>
<td>32.5</td>
</tr>
<tr>
<td>WCL</td>
<td>38.5</td>
</tr>
<tr>
<td>SCEL</td>
<td>24.5 (less than 29.44 lakhs)</td>
</tr>
<tr>
<td>NCC</td>
<td>38.7</td>
</tr>
<tr>
<td>NCL</td>
<td>36.4</td>
</tr>
</tbody>
</table>

From the table it is clear that ECL, BCCL and SCEL are fulfilling the required condition.
Hence, option E is correct.

Q25. Ans(B)
Explanation:

From the common explanation, we get

Sitaram's total investment was Rs. 43000. This is the amount that Mayawati invested in the month of March when the NAV was 11.2.

∴ Mayawati got \( \frac{43000}{11.2} \approx 3839 \) units

As calculated earlier, Sitaram had a total of 3879 units.

∴ Mayawati got 40 units less than Sitaram.

Hence, option B is correct.

Common explanation:

From the given information, we can create a table chart

<table>
<thead>
<tr>
<th>Month</th>
<th>Amount</th>
<th>NAV</th>
<th>Units = ( \frac{\text{Amounts}}{\text{NAV}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>6000</td>
<td>12</td>
<td>500</td>
</tr>
<tr>
<td>Feb</td>
<td>3000</td>
<td>12.2</td>
<td>245</td>
</tr>
<tr>
<td>Mar</td>
<td>4000</td>
<td>11.2</td>
<td>357</td>
</tr>
<tr>
<td>Apr</td>
<td>2000</td>
<td>9.25</td>
<td>216</td>
</tr>
<tr>
<td>May</td>
<td>1000</td>
<td>10.25</td>
<td>97</td>
</tr>
<tr>
<td>Jun</td>
<td>4000</td>
<td>11.4</td>
<td>350</td>
</tr>
<tr>
<td>July</td>
<td>2000</td>
<td>12.1</td>
<td>165</td>
</tr>
<tr>
<td>Aug</td>
<td>5000</td>
<td>11.4</td>
<td>438</td>
</tr>
<tr>
<td>Sept</td>
<td>4000</td>
<td>10.3</td>
<td>388</td>
</tr>
<tr>
<td>Oct</td>
<td>6000</td>
<td>12.2</td>
<td>491</td>
</tr>
<tr>
<td>Nov</td>
<td>1000</td>
<td>10.5</td>
<td>95</td>
</tr>
<tr>
<td>Dec</td>
<td>5000</td>
<td>9.3</td>
<td>537</td>
</tr>
<tr>
<td>Total</td>
<td>43000</td>
<td></td>
<td>3879</td>
</tr>
</tbody>
</table>
Q26. Ans(B)

Explanation:

Referring to the table shown below,

Total amount invested in the year = Rs. 43000

Total amount earned = Total number of units over the years x NAV on the last day of December = 3879 × 9.3 = Rs. 36,074.7

∴ Required percentage difference

\[ \frac{(43000 - 36074.7)}{43000} \times 100\% = \frac{6925.3}{430} = 16.1\% \]

Hence, option B is correct.

Common explanation:

From the given information, we can create a table chart

<table>
<thead>
<tr>
<th>Month</th>
<th>Amount</th>
<th>NAV</th>
<th>Units = Amounts NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>6000</td>
<td>12</td>
<td>500</td>
</tr>
<tr>
<td>Feb</td>
<td>3000</td>
<td>12.2</td>
<td>245</td>
</tr>
<tr>
<td>Mar</td>
<td>4000</td>
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</tr>
<tr>
<td>Apr</td>
<td>2000</td>
<td>9.25</td>
<td>216</td>
</tr>
<tr>
<td>May</td>
<td>1000</td>
<td>10.25</td>
<td>97</td>
</tr>
<tr>
<td>Jun</td>
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<td>11.4</td>
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<tr>
<td>Dec</td>
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<td>9.3</td>
<td>537</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>43000</td>
<td></td>
<td><strong>3879</strong></td>
</tr>
</tbody>
</table>

Q27. Ans(B)
If Sitaram had invested Rs. x per month, his total investment would be Rs. 12x.

Then total number of units with his

\[
= x \left( \frac{1}{12} + \frac{1}{12.2} + \frac{1}{11.2} + \frac{1}{9.25} + \frac{1}{10.25} + \frac{1}{11.4} + \frac{1}{12.1} \\
+ \frac{1}{11.4} + \frac{1}{10.3} + \frac{1}{12.2} + \frac{1}{10.5} + \frac{1}{9.3} \right)
\]

\[
\approx x (0.083 + 0.081 + 0.089 + 0.108 + 0.097 + 0.087 + 0.082 + 0.087 + 0.097 + 0.081 + 0.095 + 0.107)
\]

\[
\approx 1.094x
\]

Amount that he would earn by selling \( \approx 1.094x \times 9.3 \approx 10.17x \)

Clearly, he is losing his amount here as it's less than even 12x (the amount he invested).

\[ \therefore \text{Required percentage difference} \]

\[ \approx \frac{12x - 10.17x}{12x} \times 100 = 15.25\% \]

Hence, option B is correct.

**Common explanation:**

From the given information, we can create a table chart.

<table>
<thead>
<tr>
<th>Month</th>
<th>Amount</th>
<th>NAV</th>
<th>Units = Amounts NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>6000</td>
<td>12</td>
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</tr>
<tr>
<td>Aug</td>
<td>5000</td>
<td>11.4</td>
<td>438</td>
</tr>
</tbody>
</table>
Q28. Ans(C)

**Explanation:**

As previously solved,

Sitaram invested Rs. 43,000 in an SIP and got Rs. 36,074.7 at the end of the year.

Now, Suresh invested the same amount of Rs. 43,000 in a fixed deposit.

\[ \therefore \text{Suresh's amount} = [43000 \times (1 + \frac{0.1}{2})^2] \]

= 47407.5

Reqd difference = 47407.5 - 36074.7 = 11332.8

\[ \therefore \text{Sitaram earned Rs. 11332.8 less than Suresh.} \]

Hence option C is correct.

**Common explanation:**

From the given information, we can create a table chart

<table>
<thead>
<tr>
<th>Month</th>
<th>Amount</th>
<th>NAV</th>
<th>Units = Amounts NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>6000</td>
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<td>500</td>
</tr>
<tr>
<td>Feb</td>
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<td>438</td>
</tr>
<tr>
<td>Sept</td>
<td>4000</td>
<td>10.3</td>
<td>388</td>
</tr>
</tbody>
</table>
Q29. Ans(A)
Explanation:

NAV was 9.25 in April of 2017 and 10.5 in Nov of 2017.

∴ NAV in Nov 2017 was \( \frac{(10.5 - 9.25) \times 100}{9.25} \)

= 13.5% more than that in April 2017.

∴ NAV in Dec 2018 = \((100 + 13.5)\% \) of 10.0 = 11.35

∴ Arundhati would earn \( [(3879 \times 11.35) - 43000] \approx \text{Rs. 1026} \)

Hence, option A is correct.

Common explanation:

From the given information, we can create a table chart

<table>
<thead>
<tr>
<th>Month</th>
<th>Amount</th>
<th>NAV</th>
<th>Units = Amounts NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>6000</td>
<td>12.2</td>
<td>500</td>
</tr>
<tr>
<td>Feb</td>
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</tr>
<tr>
<td>Oct</td>
<td>6000</td>
<td>12.2</td>
<td>491</td>
</tr>
<tr>
<td>Nov</td>
<td>1000</td>
<td>10.5</td>
<td>95</td>
</tr>
<tr>
<td>Dec</td>
<td>5000</td>
<td>9.3</td>
<td>537</td>
</tr>
</tbody>
</table>
Q30. Ans(A)
Explanation:

Let total adult female literate = 100x ........... (i)

⇒ Total no of Doctors = $\frac{20}{100} \times 100x = 20x$

⇒ Total number of engineers = 20% of rest, Rest = 100x – 20x = 80x
= $\frac{20}{100} \times 80x = 16x$

⇒ Total number of teachers = 20% of rest, Rest = 80x – 16x = 64x
= $\frac{25}{100} \times 64x = 16x$

Remaining adult female = 64x – 16x = 48x = 528 ----- (given)

∴ 48 x= 528

x = 11

Put the value of x in equation (i)

Total number of adult female literate = 100x = 100 × 11 = 1100

∴ Total number of male adult literate = 8 × 1100 = 8800

⇒ Total adult literate = 1100 + 8800 = 9900

∴ total number of adult = $\frac{9900}{10} \times 100 = 99000$

⇒ total population of category F village = $\frac{19800}{40} \times 100 = 49500$

Hence, option A is correct.

Q31. Ans(B)
The populations of two categories can be equal only when the number of villages in the category with lower population is more than that of the other. But the number of villages in category B was less than that in category C in both the years. Category B and category C can never have the same population

Hence, option B is correct.

Q32. Ans(B)  
Explanation:

Given that 15840 female adult are literate

\[ \therefore \text{Number of male literate adult} = \frac{15840}{2} \times 3 \]
\[ = 23760 \quad \text{[ ratio of male to female } = 3 : 2 ] \]

Total literate adult population = \((15840 + 23760) = 39600\)

Total adult population = \(\frac{39600}{40} \times 100 = 99000\)

Total population = \(\frac{99000}{60} \times 100 = 165000\)

Population of each village = \(\frac{165000}{110} \times 100 = 1500\)

Hence, option B is correct.

Q33. Ans(A)  
Explanation:

Here we have to take the least possible population of category B and the highest possible population of category E villages.

In 2016, least possible population of category B villages = \(127 \times 200\)
Highest possible population of category E villages = 80 × 5000

∴ Reqd. % = \( \frac{127 \times 200}{80 \times 5000} \times 100 = 6.35\% \)

Hence, option A is correct.

Q34. Ans(B)
**Explanation:**

For category D villages the total population in 2016 was at least 129 × 1001

Given that the total population in 2006 was more than this,

The total population in 2006 was at least 129 × 1001 + 1 = 129130

∴ The average population of category D villages in 2006 was at least

\[
\frac{129130}{110} \approx 1173.9
\]

Hence, option B is correct.

Q35. Ans(A)
**Explanation:**

Given Cp of rice BASMATI = 16.50, Cp of rice SONAM = 22.50

Shopkeeper gain 20% ∴ Sp of Rice BASMATI = 16.50 × 1.20 = 19.8 and Sp of Rice SONAM 22.50 × 1.20 = 27

Apply method of allegation for Sp

\[
\begin{array}{c|c|c}
19.18 & 27 & \\
24.12 & / & \\
\end{array}
\]

27 - 24.12 = 2.88, 24.12 - 19.80 = 4.32
Reqd. ratio = \( \frac{2.88}{4.32} = \frac{2}{3} = 2 : 3 \)

Hence, option A is correct.

Q36. Ans (B)
Explanation:

Mixture M1 = 25 kg of rice BASMATI and 35 kg of rice SONAM
Mixture M2 = 30kg or INGIA GATE rice and 30 kg of rice BEST

Now,

CP of mixture M2 = \((30 \times 17.50) + (30 \times 13.50)\) = Rs. 930
SP of mixture M2 = 60 \times 18.60 = Rs. 1116

\[ P\% = \frac{1116 - 930}{930} = 20\% \]

Reqd. profit after selling mixture M1 = \( \frac{20 \times 125}{100} = 25\% \)

Cp of mixture M1 = \((25 \times 16.50) + (35 \times 22.50)\) = Rs. 1200
Sp of mixture M1 = \( \frac{1200 \times 125}{100} = Rs. 1500 \)
Sp of mixture M1 per kg = \( \frac{1500}{60} = Rs. 25 \)

Hence, option B is correct.
Q37. Ans(A)
Explanation:

Mixture M1 = x kg of Fortune oil + 60 kg of Shaktiman sugar
Mixture M2 = 3kg of Marygold biscuit+ 2kg of Kitkat biscuit --- [given ratio, 3:2]

From question:-
Cp of mixture M1 = Sp of mixture M2 = 1.25 Cp of mixture M2 + 1.72 ---- [after selling mixture M1, no profit no loss : Sp = Cp]

Apply concept of allegation for mixture M2, and find Cp of mixture M2

Let Cp of mixture M2 = x

\[
\begin{array}{ccc}
3 & 2 \\
1.50 & 0.95 \\
\hline
x & \frac{x}{x} & 1.50 - x
\end{array}
\]

\[\Rightarrow \frac{x - 0.95}{1.50 - x} = \frac{3}{2}\]

\[\Rightarrow x = \frac{6.4}{5}\]

∴ Sp of mixture M2 = 1.25 \times \frac{6.4}{5} = 1.6

Cp of mixture M1 = Sp of mixture M2 = 1.6 + 1.7 = 3.3

Now apply concept of allegation for mixture M1

\[
\begin{array}{ccc}
x & 60 \\
4.2 & 2.7 \\
\hline
3.3 & \frac{0.6}{0.9} & 0.9
\end{array}
\]

\[\Rightarrow \frac{0.6}{0.9} = \frac{x}{60}\]

\[\Rightarrow x = 40\]

i.e Quantity of Fortune oil in mixture M1 = 40kg

Hence, option A is correct.

Q38. Ans(C)
Explanation:

Mixture M1 = 30 kg of Dhani oil + Q kg of olive oil

Mixture M2 = q kg of Shaktiman sugar worth Rs 6.75 + 120 kg of Shaktiman sugar worth Rs 8

Given Q = 1/4 the quantity of Shaktiman sugar worth Rs 6.75 per kg, and Cp of mixture M2 = Rs(9 - 1.5) = 7.5

Now apply concept of allegation in mixture M2 for Cp

\[
\begin{array}{cc}
q & 120 \\
6.75 & 8 \\
7.5 & \\
0.5 & 0.75
\end{array}
\]

\[
\Rightarrow \frac{0.5}{0.75} = \frac{q}{120}
\]

\[\Rightarrow q = 80\]

Hence, Q = \(\frac{1}{4} \times 80 = 20\)

Now for mixture M1, let Cp of mixture of M1 = x

Apply concept of allegation in mixture M1 for Cp

From table Cp of Dhani oil is 11.50 and Cp of Olive oil is 14.25

\[
\begin{array}{cc}
30 & 20 \\
11.50 & 14.25 \\
x & \\
14.25 - x & x - 11.50
\end{array}
\]

\[
\Rightarrow \frac{14.25 - x}{x - 11.50} = \frac{30}{20}
\]

\[\Rightarrow x = 63\]
Sp of mixture $M_1 = 1.30 \times \frac{63}{5} = 16.38$

Hence Sp of mixture $M_1 = 16.38$ per kg

Hence, option C is correct.

Q39. Ans(A)
Explanation:

Let price of $C_p$ of 1gm Ghee = 1Rs

$\therefore 1000\text{gm}=\text{Rs}1000$

Marked price = $1000 \times 1.20 = 1200$

Selling price = $1200 - 20\%$ of $1200 = 960$

From Question shopkeeper use 800 instead of 1kg $\therefore$ Actual $C_p = \text{Rs}800$

Profit $\% = \frac{960 - 800}{800} \times 100\% = 20\%$

Hence, option A is correct.

Q40. Ans(A)
Explanation:

<table>
<thead>
<tr>
<th>Day</th>
<th>Day1</th>
<th>Day2</th>
<th>Day3</th>
<th>Day4</th>
<th>Day5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>6.25% of 8 hrs = 30 minutes</td>
<td>12.5% of 8 hours = 1 hour</td>
<td>3.125% of 8 hours = 15 minutes</td>
<td>8.33% of 8 hours = 1/12 of 8 hours=2/3 hours= 40 minutes</td>
<td>16.67% of 8 hours = 1/6 of 8 hours = 4/3 hours = 1 hour 20 minutes</td>
</tr>
</tbody>
</table>

Let from day1 to day 5 he travels a, b, c, d, and e km respectively
From the line graph, Distance = speed × time 15% of a

= 40 × \( \frac{1}{2} \) = 20 km

\[ A = \frac{20 \times 100}{15} \text{ km} \]

Day2,
15% of b = 60 × 1 = 60 km
\[ B = \frac{60 \times 100}{15} \text{ km} \]

Day3,
15% of c = \( \frac{1}{4} \times 68 \)
\[ C = \frac{1700}{15} \text{ km} \]

Day4,
15% of d = \( \frac{2}{3} \times 72 \)
\[ D = \frac{4800}{15} \text{ km} \]

Day5,
15% of e = \( \frac{4}{3} \times 120 \)
\[ E = \frac{16000}{15} \text{ km} \]

Sum = \( \frac{2000}{15} + \frac{6000}{15} + \frac{1700}{15} + \frac{4800}{15} + \frac{16000}{15} \)

= \( \frac{30500}{15} = \frac{6100}{3} \text{ km} = 2033 \frac{1}{3} \text{ km} \)

Hence, option A is correct.
Q41. Ans(E)
Explanation:

The total distance travelled by M3 in the five days

\[= 25\% \times \frac{2000}{15} + 25\% \times \frac{6000}{15} + 25\% \times \frac{1700}{15} + 25\% \times \frac{4800}{15} + 25\% \times \frac{16000}{15}\]

\[= \frac{6100}{12} = 1525 \text{ km}\]

The total distance travelled by M2 in the five days

\[= 35\% \times \frac{2000}{15} + 35\% \times \frac{6000}{15} + 35\% \times \frac{1700}{15} + 35\% \times \frac{4800}{15} + 35\% \times \frac{16000}{15}\]

\[= \frac{2135}{12} \text{ km}\]

The reqd. difference = \[\frac{2135}{3} - \frac{1525}{3} = \frac{610}{3} \text{ km}\]

Hence, option E is correct.

Q42. Ans(B)
Explanation:

The total distance travelled by the person in the first two days

\[= \frac{2000}{15} + \frac{6000}{15} = \frac{400}{3} + \frac{1200}{3} = \frac{1600}{3} \text{ km}\]

Total time = 8 \times 2 = 16 hours

Average speed = \[\frac{1600}{3 \times 16} = \frac{100}{3} \text{ km per hour}\]

The total distance travelled by the person in the first two days

\[= \frac{1700}{15} + \frac{4800}{15} + \frac{16000}{15} = \frac{22500}{15} = \frac{4500}{3} = 1500 \text{ km}\]

Average speed = \[\frac{1500}{25} = 60 \text{ km per hour}\]
The reqd. % = \( \frac{100}{\frac{3}{125}} \times 100 = \frac{160}{3} = 53.33\% \)

Hence, option B is correct.

Q43. Ans(D)

Explanation:

The total time travelled by man in 5 days = \( 8 \times 5 = 40 \) hours

The total time spent to travel by M1 = 25% of 40 = 10 hours

The total distance travelled by M1 in 5 days
= 10% of \( \frac{6100}{3} \) = \( \frac{610}{3} \) km

The average speed of M1 during the five days
= \( \frac{\frac{610}{3} \times 10}{3} \) km per hour

The total distance travelled by M5 in 5 days
= 15% of \( \frac{6100}{3} \) = 305 km

The total time =

<table>
<thead>
<tr>
<th>Day</th>
<th>Day1</th>
<th>Day2</th>
<th>Day3</th>
<th>Day4</th>
<th>Day5</th>
</tr>
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<td>16.67% of 8 hours = 1/6 of 8 hours = 4/3 hours = 1 hour 20 minutes</td>
</tr>
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</table>

30 mins + 1 hr + 15 min + 40 mins + 1 hr 20 mins = 3 hrs 45 mins = 15/4 hr

The average speed = \( \frac{\frac{305 \times 4}{15}}{3} = \frac{244}{3} \) km per hour

The reqd. % = \( \frac{\frac{244}{3} - \frac{61}{3}}{100} \times 100 = 183 \times \frac{100}{100} = 75\% \)
Hence, option D is correct.

Q44. Ans(E)
Explanation:

Since we could not find the time spend by the person to travel by mode 3 or mode 4 therefore, it is not possible to get the answer.

Hence, option E is correct.

Q45. Ans(C)
Explanation:

The efficiency of Pipe A is 80% of the efficiency of Pipe B and the efficiency of Pipe C is 12.5% less than the efficiency of Pipe B

Let the efficiency of pipe B = 10x then the efficiency of pipe A = 8x and the efficiency of pipe c = 7x

Total quantity of water filled on July 1, 975 + 850 + 750 = 2575 thousand litres

on July 1, they together operated for 8 hours 35 minutes

if they work together then the total efficiency = 10x+ 8x + 7x = 25x

now they take 8 hours 35 minutes = 515 minutes to fill 2575 thousand litres water

\[
\frac{103}{12} \times 25x = 2575 \text{ thousand litres}
\]

= 12 thousand Therefore, the efficiency of pipe A = 8x = 96 thousand per hour The efficiency of pipe B = 10x = 120 thousand per hour The efficiency of pipe C = 7x = 84 thousand per hour Total quantity of water filled by pipe A in 7 days = 975 + 850 + 650 + 725 + 1025 + 875 + 675 = 5775 thousand litres The total time taken by Pipe A

\[
\frac{5775}{96} \text{ hours}
\]
= approximately 60.16 hours

The total quantity of water filled by pipe b in 7 days = 850 + 800 + 950 + 625 + 975 + 750 + 875 = 5825 thousand litres

The total time taken by pipe B = \[
\frac{5825}{120} = 120 \text{ hours}
\]

The required difference = 60.16 – 48.54 = 11.62 hours = approximately 11 hours 37 minutes

Hence, option C is correct.

Q46. Ans(A)

Explanation:

the efficiency of pipe A = 8x = 96 thousand per hour

The efficiency of pipe B = 10x = 120 thousand per hour

The efficiency of pipe C = 7x = 84 thousand per hour

The efficiency of pipe D = 150 thousand per hour

When all the four pipes work together then the efficiency = 96 + 120 + 84 – 150 = 150 thousand litres per hour

The total time taken = \[
\frac{4500}{150} = 30 \text{ hours}
\]

Hence, option A is correct.

Q47. Ans(A)

Explanation:

The total quantity of water filled by pipe C = 750 + 825 + 675 + 775 + 1150 + 625 + 925 = 5725 thousand litres

The efficiency of pipe C = 7x = 84 thousand per hour

The total time = \[
\frac{5725}{84} = \text{approximately} 68.15 \text{ hours}
\]
Hence, option A is correct.

Q48. Ans(C)
Explanation:

The efficiency of pipe A = 8x = 96 thousand per hour, New efficiency = 125% of 96 = 120 thousand litres per hour

The efficiency of pipe B = 10x = 120 thousand per hour, new efficiency = 80% of 120 = 96 thousand litres per hour

The efficiency of pipe C = 7x = 84 thousand per hour

Total efficiency if all of them work together = 120 + 96 + 84 = 300 thousand litres per hour

Here we need to calculate the total time taken to fill 5775 + 5825 + 5725 = 17325 thousand litres

The total time = \( \frac{17325}{300} \) = 57.75 hours = 57 hours 45 minutes

Hence, option C is correct.

Q49. Ans(B)
Explanation:

Let the efficiency of pipe E = x

The total efficiency of all the four pipes together = 120 + 96 + 84 + x = 300 + x thousand litres per hour

According to the question, it takes 52 hours

52 \times (300 + x) = 5775 + 5825 + 5725 = 17325 thousand litres

52x = 17325 – 15600 = 1725 thousand litres per hour
X = \frac{1725}{52} = \text{approximately 33 thousand litres per hour}

\text{The reqd. \% } = 33 \times \frac{100}{120} = 33 \times \frac{5}{6} = \frac{55}{2} = 27.5\%

Hence, option B is correct.

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