1. C
Solution: Income of Infosys in year 2013 = \(18000 \times \frac{22}{100}\) = 3960
Expenditure of Infosys in year 2013 = 
= \(100 \times \frac{3960}{132}\)
= 3000
Profit = Income - Expenditure
= 3960 - 3000
= 960
Profit increases 100 Crore, so new profit = 960 + 100 = 1060
Percentage Profit = \(\frac{1060}{3000} \times 1000\) = 35.33

2. B
Solution:
Income of TCS in Year 2015, 2016 and 2017 = \((26+12+32) \times 15000 / 100\) = 10500
Expenditure of TCS in year 2015, 2016 and 2017 = \(100 \times \text{Income} / 128\)
= \(100 \times \frac{3900}{128}\)
= 3046.87
Similarly, Expenditure in 2016 = \(100 \times \frac{1800}{138}\)
= 1304.38
Expenditure in 2017
Total expenditure = \( 3046.87 + 1304.38 + 3380.28 \)
= 7731.50
Profit % = \( \frac{\text{Income} - \text{Expenditure}}{\text{Expenditure}} \times 100 \)
= \( \frac{10500 - 7731.50}{7731.50} \times 100 \)
= 35.80

3. C
Solution: Expenditure of Infosys in 2013 and 2014 are:
= \( 100 \times \frac{3960}{132} \) and \( 100 \times \frac{3240}{134} \)
= 3000 and 2417.9
Expenditure of TCS in Year 2013 and 2014 are:
= \( 100 \times \frac{2850}{130} \) and \( 100 \times \frac{1650}{136} \)
= 2192 and 1213
Ratio = \( \frac{5417}{3405} \) = 1.6 i.e. equivalent to \( \frac{8}{5} = 1.6 \), Hence answer is option (C).

4. D
Solution: Income in year 2017 for Infosys is:
= \( 18000 \times \frac{10}{100} \)
= 1800
Decrease of 50% in Income in year 2018 = 900
Profit Percentage = 44 + 10 = 54 %
Expenditure = \( 100 \times \frac{900}{(100+54)} \)
= 584.41 Cr
5. A
Solution:
Income for year 2018 = 0.80* 0.32* 15000
=3840 cr
Profit% of year 2018= 42-5= 37%
Expenditure of year 2018= 2802.92
Expenditure of year 2017= 3380.28
Difference = 3380.28- 2802.92
= 577.362
6. B
Explanation – lets total population of Lucknow and Delhi is 5x and 6x respectively
ATQ –
\[ 6x \times \frac{20}{100} \times \frac{1}{6} - 5x \times \frac{10}{100} \times \frac{2}{9} = 800 \]
\[ \frac{9x-5x}{45} = 800 \]
\[ X = 9000 \]
Required ratio = \[ \frac{\left(9000 \times 5 \right) \times \frac{10}{100} \times \frac{7}{9}}{\left(9000 \times 6 \right) \times \frac{20}{100} \times \frac{3}{6}} \]
\[ = \frac{3500}{9000} \]
\[ = 7 : 18 \]
7. C
Explanation -
percentage of unemployed people = x
percentage of private employee from Lucknow = \( \frac{6x}{5} \)
given, \[ x + \frac{6x}{5} = 66\% \]
\[ x = 30\% \]

percentage of private employee from Lucknow = 36\%

ATQ –

\[ 36\% - 24\% = 5400 \]
\[ 12\% = 5400 \]
\[ 1\% = 450 \]
government employee in Delhi = \[ y \]
\[ y = 45000 \times \frac{34}{100} + 10800 \]
\[ = 21600 \]
Total population of Delhi = \[ \frac{21600}{40} \times 100 \]
\[ = 54000 \]

8. A
Explanation – lets total population of Mumbai and Pune is 8\( x \) and 9\( x \) respectively

ATQ –

\[ 9x \times \frac{20}{100} - 8x \times \frac{21}{100} = 960 \]
\[ \frac{12x}{100} = 960 \]

\[ X = 8000 \]
government employees in Mumbai and Pune
\[ = 8000 \times 8 \times \frac{38}{100} + 8000 \times 9 \times \frac{35}{100} \]
\[ = 24320 + 25200 \]
Required average $= \frac{49520}{2}$
$= 24760$

9. E

Explanation – lets total population of Lucknow and Hyderabad is $5x$ and $7x$ respectively.

number of private employees & unemployed people together from Lucknow

$= 5x \times \frac{100 - (24 + 10)}{100}$
$= 3.3x$

total number of government employee & people have own business together from Hyderabad

$= 7x \times \frac{100 - (25 + 26)}{100}$
$= 3.43x$

Required percentage $= \frac{3.3x}{3.43} \times 100$
$\approx 96.20$

10. D

Explanation – lets total population of Mumbai and Hyderabad is $64x$ and $63x$ respectively.

ATQ

$63x \times \frac{26}{100} - 64x \times \frac{21}{100} = 2940$

$\frac{1638x - 1344}{100} = 2940$

$X = 1000$
Total number of private employees from Mumbai and Hyderabad

\[
\begin{align*}
&= 64 \times 1000 \times \frac{16}{100} + 63 \times 1000 \times \frac{25}{100} \\
&= 10240 + 15750 \\
&= 25990
\end{align*}
\]

Required average = \( \frac{25990}{2} \) = 12995

11. D
Explanation:
\[
\% = \frac{(220-140)}{140} \times 100 = 400/7 \%
\]

12. A
Explanation:
Average number of applications received for University A in 2013, 2015 and 2016 = \( \frac{130 + 210 + 230}{3} = 190 \)

13. B
Explanation:
Total number of applications received for Universities P and Q together in 2016 = 230 + 190 = 420
Total number of applications received for Universities P and Q together in 2017 = 420 \times \frac{4}{3} = 560

14. A
Explanation:
Total Number of International applicants for University P and Q together = \( \frac{210}{100} \times 30 + \frac{140}{100} \times 20 \) \\
= 63 + 28 = 91

15. D
Explanation:
Total number of applications accepted by P and Q together in 2013 = (130 + 280) * 30/100
= 123
16. C

Explanation:
Literate graduates in Hyderabad = 1/5 * literate graduates in Chennai
Literate graduates in Chennai = 55/100 * 615000 = 338250
Literate graduates in Hyderabad = 1/5 * 338250 = 67650
Literate graduates in Bangalore = 65/100 * 480000 = 312000
Diff = 312000 – 67650 = 244350
17. C

Explanation:
Sum = 7/10 * 615000 + 7/16 * 480000 = 430500 + 210000 = 640500
18. D

Explanation:
1/4 * Hyderabad = 1,60,000 => Hyderabad = 6,40,000
Literate population of Hyderabad = 7/11 * 6,40,000 = 2,80,000
Literate population of Chennai = 295200
Literate population of Bangalore = 211200
Total number of literate = 786400
Total population of three = 1735000
Percentage = 786400/1735000 * 100 = 45%
19. B

**Explanation:**
Mumbai = 105000 + 480000 = 585000
Rural Population = \( \frac{6}{13} \times 585000 = 270000 \)
Urban Population = \( \frac{7}{13} \times 585000 = 315000 \)
Percentage = \( \frac{(\text{Difference} / \text{Rural Population}) \times 100}{(45000 / 270000) \times 100} = 17\% \)

20. B

**Explanation:**
Mumbai + Hyderabad = 12,25,000
Hyderabad – Mumbai = 55000
Hyderabad = 640000; Mumbai = 585000
Urban population of Mumbai and Hyderabad = \( \frac{7}{13} \times 585000 + \frac{3}{10} \times 640000 = 507000 \)
Percentage = \( \frac{507000 / 12,25,000 \times 100} = 41\% \)

21. Ans(A)

**Explanation:**
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
\[
\frac{x}{75} + \frac{x}{50} + \frac{x}{125} + \frac{x}{100} = 2
\]
\[
\frac{10x + 15x + 6x + 5x}{750} = 2
\]

\[
36x = 1500, \quad x = \frac{1500}{36} = \frac{125}{3}
\]

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.

22. Ans(C)
Explanation:

The total time taken by Ram

\[ \frac{1500}{75} + \frac{1500}{50} + \frac{1500}{125} + \frac{1500}{150} = 20 + 30 + 12 + 10 = 72 \text{ hours} \]

The total time taken by Shayam

\[ \frac{1500}{125} + \frac{1500}{75} + \frac{1500}{75} + \frac{1500}{85} = 12 + 20 + 20 + 17.65 = 69.65 \text{ hours (Approximately)} \]

The total time taken by Mohan

\[ \frac{1500}{100} + \frac{1500}{125} + \frac{1500}{125} + \frac{1500}{75} = 15 + 12 + 12 + 20 = 59 \text{ hours} \]

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.

23. 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.

24. Ans(C)

Explanation:

if they spend equal amount of time on each work then they will spend \(60/4 = 15\) minutes on each work

Ram work for 15 minutes i.e. \(1/4\) 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

\[\frac{125}{4} + \frac{75}{4} + \frac{75}{4} + \frac{85}{4} = \frac{360}{4} = 90 \text{ units}\]

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
Facebook Page  
Facebook Group  
Telegram Group

\[
\frac{106.25 + 112.5}{2} = \frac{218.75}{2} = 109.375 \text{ units}
\]

The required difference = 109.375 – 95 = 14.375 units

Hence, option C is correct.

25. 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

**Match 4**

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>
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<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.

26. Ans(D)
Explanation:

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</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.

27. Ans(C)

Explanation:

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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 match 1 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 match 4 = 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.

28. Ans(D)
Explanation:
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) = (240 – 235)

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.

29. Ans(E)

Explanation:

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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.

30. B
Explanation:
C = 3,25,000*20/100 = 65000
5:3 = 40625:24375
F = 3,25,000*8/100 = 26000
3:1 = 19500:6500
% = 6500*100/40625 = 16%

31. D
Explanation:
B = 81250
Engineering: 81250*3/5 = 48750
From the given data number of male students in Engineering can’t be determined

32. D
Explanation:
E = 325000*12/100 = 39000
MBBS:Er = 5:3
MBBS = 39000*5/8 = 24375
A = 325000*20/100 = 65000
MBBS:Er = 3:2
MBBS = 65000*3/5 = 39000
Difference = 39000-24375 = 14625

33. C
Explanation:
B = 25*325000/100 = 81250
Female students in B = 81250*7/10 = 56875
F = 56875
Female students in F = 26000*1/4 = 6500
56875:6500 = 2275:260 =455:52

34. A
Explanation:
A = 65000
No of Er Students = 65000*2/5 = 26000
D = 15*325000/100 = 48750
No of MBBS Students = 48750*8/13 = 30000
% = \[30000-26000/30000\] * 100
= 4000*100/30000 = 13.33%

35. 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} \text{ km} = 16\% \text{ of the total distance travelled by her}

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

By, solving

The total distance travelled by Priyanka = \frac{5x}{4} = 1.25 \times \text{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.

36. 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,

\[ 25\% = 36 \times \frac{25}{20} = 45 \text{ km} \]

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

The total distance travelled by Munni

\[ = 45 \times \frac{100}{20} = 225 \text{ km} \]

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 = \[ \frac{225}{5} = 45 \text{ km/hr} \]

Required difference = 45 – 45 = 0 km/hr

Hence, option E is correct.

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

30% of 250 = 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 = \( \frac{312.5}{(x + 1)} \) km/hr : \( \frac{500}{x} \) km/hr

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

Hence, option E is correct.

38. 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 \times \frac{42}{16} = 157.5 \text{ km}

Similarly, For Pinki,

30% of 300 = 15% of the total distance travelled by her  
15% = 90  
So, (20 + 15)% = 35%  

= 90 \times \frac{35}{15} = 210 \text{ km}

For Rinki,

25% of 300 = 22% of the total distance travelled by her 22%  
= 75 \text{ km}

So, (19 + 16)% = 35%  

= 75 \times \frac{35}{22} = 119.32 \text{ km}

For Munni,

25% of 300 = 20% of the total distance travelled by her 20%
= 75 km

So, \((26 + 18)\% = 44\%\)

\[= 75 \times \frac{44}{20} = 165 \text{ km}\]

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

Hence, option A is correct.

39. Ans(A)

Explanation:
The sum of the total distance travelled by Priyanka and Pinki together on foot is \(125 \times 2 = 250 \text{ km}\)

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 = \(250 \text{ km}\)

the total distance travelled by all of them on foot

\[= 250 \times \frac{100}{50} = 500 \text{ km}\]

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

Total distance = $125 \times \frac{100}{22}$

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

Total distance = $125 \times \frac{100}{20}$

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.
40. Ans(C)
Explanation:

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.

41. 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. % = (697.4) × \frac{100}{1860} = 37.5% approximately

Hence, option D is correct.

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

Hence, option C is correct.

43. 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.
44. 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.

45. 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 +</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.

46. 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><strong>Total</strong></td>
<td><strong>222.2</strong></td>
<td><strong>195.8</strong></td>
<td><strong>0.88</strong></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 number of subsidiary which has less than the ratio of the number of females to the number of males are four.

Hence, option D is correct.

47. Ans(B)
Explanation:

Number of illiterates in subsidiary ECL = (0.4 × 26.5 + 0.6 × 32.5) = 30.1

Number of illiterates in subsidiary BCCL = (0.4 × 25.1 + 0.6 × 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.

48. 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>
<tbody>
<tr>
<td>ECL</td>
<td>26.5</td>
<td>32.5</td>
<td>6.0</td>
<td>5.90</td>
</tr>
<tr>
<td>BCCL</td>
<td>25.1</td>
<td>20.5</td>
<td>4.6</td>
<td>4.56</td>
</tr>
<tr>
<td>CCL</td>
<td>32.5</td>
<td>30.2</td>
<td>2.3</td>
<td>6.27</td>
</tr>
<tr>
<td>WCL</td>
<td>38.5</td>
<td>32.8</td>
<td>5.7</td>
<td>7.13</td>
</tr>
<tr>
<td>SCEL</td>
<td>24.5</td>
<td>31.2</td>
<td>6.7</td>
<td>5.57</td>
</tr>
<tr>
<td>NCC</td>
<td>38.7</td>
<td>24.9</td>
<td>13.8</td>
<td>6.36</td>
</tr>
<tr>
<td>NCL</td>
<td>36.4</td>
<td>23.7</td>
<td>12.7</td>
<td>6.01</td>
</tr>
<tr>
<td>Total</td>
<td>222.2</td>
<td>195.8</td>
<td>26.4</td>
<td>41.8</td>
</tr>
</tbody>
</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.
49. 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.

50. 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.

\[
\text{Mayawati got } \frac{43000}{11.2} \approx 3839 \text{ units}
\]

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 = 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>
<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><strong>Total</strong></td>
<td><strong>43000</strong></td>
<td></td>
<td><strong>3879</strong></td>
</tr>
</tbody>
</table>

51. 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 \times 9.3 = Rs. 36,074.7

\[
\therefore \text{Required percentage difference} = \frac{(43000 - 36074.7)}{43000} \times 100\% = \frac{6925.3}{430} = 16.1\%
\]

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>
<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>
</tbody>
</table>
52. Ans(B)
Explanation:

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

Then total number of units with his

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

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

\[
\approx 1.094x
\]

Amount that he would earn by selling \( \approx 1.094x \times 9.3 \approx \)
Clearly, he is losing his amount here as it's less than even 12x (the amount he invested).

∴ 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 = ( \frac{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>
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<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>
</tbody>
</table>
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.

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

\[ = 47407.5 \]

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 = ( \frac{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>
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<td>Mar</td>
<td>4000</td>
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<td>357</td>
</tr>
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<td>Apr</td>
<td>2000</td>
<td>9.25</td>
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<td>1000</td>
<td>10.25</td>
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<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>
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 \([(3879 \times 11.35) - 43000]\) ≈ 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</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>
</tbody>
</table>
### Facebook Page

<table>
<thead>
<tr>
<th>Month</th>
<th>Members</th>
<th>Average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<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><strong>Total</strong></td>
<td><strong>43000</strong></td>
<td><strong>3879</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Telegram Group

<table>
<thead>
<tr>
<th>Month</th>
<th>Members</th>
<th>Average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<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>
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<td>11.4</td>
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</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><strong>Total</strong></td>
<td><strong>43000</strong></td>
<td><strong>3879</strong></td>
<td></td>
</tr>
</tbody>
</table>

### 55. 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

\[ n = \frac{20}{100} \times 80x = 16x \]

⇒ 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 = \[ \frac{9900}{50} \times 100 = 19800 \]

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

Hence, option A is correct.

56. Ans(B)
Explanation:

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.

57. Ans(B)
Explanation:

Given that 15840 female adult are literate

\[\therefore \text{Number of male literate adult} = \frac{15840}{2} \times 3\]

= 23760 ---- [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 = \[99000 \times 100 = 165000\]
Population of each village = \( \frac{165000}{110} \times 100 = 1500 \)

Hence, option B is correct.

58. 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 = \( 80 \times 5000 \)

\[ \therefore \text{Reqd.} \% = \frac{127 \times 200}{80 \times 5000} \times 100 = 6.35\% \]

Hence, option A is correct.
59. 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.

60. 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

\[
\begin{array}{c|c}
19.18 & 27 \\
\hline
\frac{\downarrow}{24.12} & \frac{\downarrow}{27 - 24.12} \\
\frac{\downarrow}{24.12 - 19.80} & 24.12 - 19.80
\end{array}
\]

27 – 24.12 = 2.88, 24.12 – 19.80 = 4.32

Reqd. ratio = 2.88/4.32 = 2/3 = 2 : 3

Hence, option A is correct.

61. Ans (B)
Explanation:

Mixture M1 = 25 kg of rice BASMATI and 35 kg of rice SONAM

Mixture M2 = 30 kg of 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.

62. 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

\[
\begin{array}{ccc}
3 & 2 & \\
1.50 & 0.95 & \\
\end{array}
\]

\[
\begin{array}{c}
\text{x} \\
\text{x} \\
\text{x} - 0.95 \\
\text{1.50} - \text{x} \\
\end{array}
\]

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

\[
\Rightarrow \text{x} = \frac{6.4}{5}
\]
Sp of mixture M2 = 1.25 × \( \frac{6.4}{5} \) = 1.6

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

Now apply concept of allegation for mixture M1

\[
\begin{array}{c|c|c}
0.6 & 0.9 & 0.6 \\
\hline
3.3 & \text{ } & 3.3 \\
\hline
x & 60 & \frac{x}{60}
\end{array}
\]

⇒ x = 40

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

Hence, option A is correct.

63. 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 \( Q = \frac{1}{4} \) the quantity of Shaktiman sugar worth Rs 6.75 per kg, and \( C_p \) of mixture M2 = Rs\((9 - 1.5) = 7.5\)

Now apply concept of allegation in mixture M2 for \( C_p \)

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

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

\[
\Rightarrow q = 80
\]

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

Now for mixture M1, let \( C_p \) of mixture of M1 = x

Apply concept of allegation in mixture M1 for \( C_p \)
From table Cp of Dhani oil is 11.50 and Cp of Olive oil is 14.25

\[
\begin{array}{c|c|c}
30 & 20 & 11.50 & 14.25 \\
\hline
14.25 - x & x - 11.50
\end{array}
\]

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

\[
\Rightarrow x = \frac{63}{5}
\]

Sp of mixture M1 = 1.30 × \(\frac{63}{5}\) = 16.38

Hence Sp of mixture M1 = 16.38 per kg

Hence, option C is correct.

64. Ans(A)

Explanation:
Let price of Cp of 1gm Ghee = 1Rs

\[1000gm=Rs1000\]

Marked price = \[1000 \times 1.20 = 1200\]

Selling price = \[1200 - 20\% \text{ of } 1200 = 960\]

From Question shopkeeper use 800 instead of 1kg \[\therefore \text{ Actual Cp = Rs800}\]

\[
\text{Profit }\% = \frac{960 - 800}{800} \times 100\% = 20\%
\]

Hence, option A is correct.

65. 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</td>
</tr>
</tbody>
</table>
Let from day 1 to day 5 he travels a, b, c, d, and e km respectively.

From the line graph, Distance = speed × time
15% of a

\[ = 40 \times \frac{1}{2} = 20 \text{ km} \]

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

Day 2,
15% of b = 60 × 1 = 60 km

\[ B = \frac{60 \times 100}{15} \text{ km} \]

Day 3,
15% of c = \( \frac{1}{4} \times 68 \)

\[ C = 1700 \text{ km} \]
Day 4,

$15\% \text{ of } d = \frac{2}{3} \times 72$

$D = \frac{4800}{15} \text{ km}$

Day 5,

$15\% \text{ of } e = \frac{4}{3} \times 120$

$E = \frac{16000}{15} \text{ km}$

$\text{Sum} = \frac{2000}{15} + \frac{6000}{15} + \frac{1700}{15} + \frac{4800}{15} + \frac{16000}{15}$

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

Hence, option A is correct.

66. Ans(E)
Explanation:

The total distance travelled by M3 in the five days
\[ = 25\% \cdot \frac{2000}{15} + 25\% \cdot \frac{6000}{15} + 25\% \cdot \frac{1700}{15} + 25\% \cdot \frac{4800}{15} + 25\% \cdot \frac{16000}{15} \]
\[ = \frac{6100}{12} = \frac{1525}{3} \text{ km} \]

The total distance travelled by M2 in the five days
\[ = 35\% \cdot \frac{2000}{15} + 35\% \cdot \frac{6000}{15} + 35\% \cdot \frac{1700}{15} + 35\% \cdot \frac{4800}{15} + 35\% \cdot \frac{16000}{15} \]
\[ = \frac{2135}{12} \text{ km} \]

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

Hence, option E is correct.

67. 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 × 2 = 16 hours

Average speed = \( \frac{1600}{3 \times 16} = \frac{100}{3} \) 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 = \( \frac{1500}{8 \times 3} = \frac{250}{4} = \frac{125}{2} \) km per hour

The reqd. % = \( \frac{100}{\frac{125}{2}} \times 100 = \frac{160}{3} = 53.33\% \)
Hence, option B is correct.

68. Ans(D)
Explanation:

The total time travelled by man in 5 days = 8 × 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
= \( \frac{610}{3 \times 10} \) = \( \frac{61}{3} \) 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>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day1</td>
<td>6.25% of 8 hrs = 0.625 hrs</td>
</tr>
<tr>
<td>Day2</td>
<td>12.5% of 8</td>
</tr>
<tr>
<td>Day3</td>
<td>3.125% of 8</td>
</tr>
<tr>
<td>Day4</td>
<td>8.33% of 8 hours = 0.6667 hrs</td>
</tr>
<tr>
<td>Day5</td>
<td>16.67% of 8</td>
</tr>
</tbody>
</table>
The average speed = \frac{305 \times 4}{15} = \frac{244}{3} \text{ km per hour}

The reqd. % = \frac{\left(\frac{244}{3} - \frac{61}{3}\right) \times 100}{\frac{244}{3}} = \frac{183 \times 100}{244} = 75\% 

Hence, option D is correct.

69. 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.

70. 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

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

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

Hence, option C is correct.

71. 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 = $\frac{4500}{150} = 30$ hours

Hence, option A is correct.

72. 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} = $approximately 68.15 hours
Hence, option A is correct.

73. 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.
74 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

\[ 52 \times (300 + x) = 5775 + 5825 + 5725 = 17325 \text{ thousand litres} \]

\[ 52x = 17325 - 15600 = 1725 \text{ thousand litres per hour} \]

\[ X = \frac{1725}{52} = \text{approximately 33 thousand litres per hour} \]

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

Hence, option B is correct
“Thanks & Be Ambitious”

All the best for your Exams 😊