Direction (1 – 5): Read the following information carefully and answer the given questions:

Total distance between A to B is 240km. Train P starts running with an average speed of (S) kmph from A to B while another train Q starts running after 2 hours of train A and reaches B 60 minutes before train P. If train A stops for 60 minutes at a line crossing and second train did not stop at any place, then the ratio between the speed of train P to speed of train Q is 4:5.

Prem distributed Rs.14000 between his two daughters Anu and Bharathi and both of them invested at the rate of (S-6)% SI per annum. The age of Bharathi and Anu at that time was 18 years and (S) years respectively and such that each daughter may get equal amounts, when they attain the age of 21 years. Initial amount the Anu has is (T).

The price of article increased by (S)% every year. If the difference between the price at the end of the third year and fourth years is (U) and the price at the end of second year is Rs.23200.

Prem sells his car, if profit on selling a car for (T) is thrice the loss on selling it for Rs.4500. The Cost price of Prem car is (V).

1) Find the value in the place of (S)
   a) 15 kmph  
   b) 26 kmph  
   c) 16 kmph  
   d) 18 kmph  
   e) None of these

2) Find the value in the place of (V)
   a) Rs.8000  
   b) Rs.6000  
   c) Rs.4000  
   d) Rs.5000  
   e) None of these

3) Quantity I: U  
   Quantity II: T
   a) Quantity I > Quantity II  
   b) Quantity I ≥ Quantity II  
   c) Quantity II > Quantity I  
   d) Quantity II ≥ Quantity I  
   e) Quantity I = Quantity II or Relation cannot be established

4) Find the difference between V and T?
   a) Rs.1500  
   b) Rs.2500  
   c) Rs.500  
   d) Rs.1600  
   e) None of these

5) Find the value in the place of (U)
   a) 4305.92  
   b) 4206.92  
   c) 4108.92  
   d) 4006.92  
   e) None of these
Directions (6 – 10): Study the following graph carefully and answer the given questions.

The table shows the discount rate of four different items in five different shops.

<table>
<thead>
<tr>
<th>Shops</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25%</td>
<td>15%</td>
<td>_</td>
<td>30%</td>
</tr>
<tr>
<td>B</td>
<td>20%</td>
<td>_</td>
<td>16%</td>
<td>_</td>
</tr>
<tr>
<td>C</td>
<td>_</td>
<td>12%</td>
<td>_</td>
<td>15%</td>
</tr>
<tr>
<td>D</td>
<td>10%</td>
<td>30%</td>
<td>20%</td>
<td>_</td>
</tr>
<tr>
<td>E</td>
<td>30%</td>
<td>_</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Note: Selling price for each item is same in all the shops

6) **Quantity I**: If the ratio of the marked price of item 1 and item 4 in shop E is 15: 14, and the marked price of shop D in item I is Rs. 7000. Find the selling price of item 4 in shop E?

**Quantity II**: In item 2, if marked price in shop C is 25% more than the cost price and the profit percentage of shop C is 10% which is equal to 280. Find the cost price of shop D if marked price of item 2 in shop D is 10% more than the cost price?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

7) **Quantity I**: Item 3, cost price of all the shops is Rs. 4800 and the marked price is 40%, 50% and 25% more than the cost price in shop B, D and E respectively. Find the total selling price of shop B, D and E together

**Quantity II**: If the selling price of item 4 of all the shops is Rs. 9520, find the total marked price of shop A, C and E?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

8) **Quantity I**: In shop E, Cost price of item 1 is Rs. 800 more than the cost price of item 4 and the marked price of item 1 and 4 is 60% and 80% more than the cost price respectively. Find the selling price of item 4 if the selling price is same for both the items?

**Quantity II**: If the marked price of item 3 in shop B is 20% more than the cost price, which is 6000, find the marked price of item 3 in shop D?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

9) In shop D, if the ratio of marked price in item 1, item 2 and item 3 is 56: 72: 63 and the marked price of item 1 in shop B is Rs.6300.

**Quantity I**: Find the marked price of item 2 in shop A

**Quantity II**: Find the marked price of item 3 in shop E

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

10) **Quantity I**: Find the marked price of item 4 in shop A. If the marked price of item 4 in shop E is Rs. 6300

**Quantity II**: Find the marked price of item 2 in shop C. If the marked price of item 2 in shop D is Rs. 4400

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
Direction (11 –15): Read the following information carefully and answer the given questions:

Sachin and Virat played five different matches. Sachin scored 60% runs in Match1 where as score of Virat in the same match is 100. Sachin scored 60% runs in Match2 which is 60 more than the runs of Virat in the same match. The ratio between the runs of Virat and Sachin in Match3 is 2: 3, where as the difference in their runs in Match3 is 48. The total score in Match3 is 80% of the total score in Match5. Sachin scored 78 runs in Match4 which is 18 more than runs of Virat in the same Match. Sachin scored 60 less than runs that of Virat in the same Match.

11) Quantity I: What is average score of Sachin in all the 5 matches together?
Quantity II: What is the average score of Virat in all the 5 matches together?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity II > Quantity I
d) Quantity II ≥ Quantity I
e) Quantity I = Quantity II or Relation cannot be established

12) Find the total score in Match6?

Statement I: Sachin’s score in Match6 is 50% of the runs in his score in Match2 and the Virat score in Match6 is 80% of Sachin in the same match.

Statement II: Sachin scored 40% runs in Match6.

a) Only I
b) Only II
c) Either I or II sufficient
d) All I and II necessary to the answer the question
e) The question can’t be answered even with all I and II

13) Quantity I: Virat score in Match5 is what percent of the total score in Match3?
Quantity II: Sachin score in Match3 is what percent of the total score in the same match?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity II > Quantity I
d) Quantity II ≥ Quantity I
e) Quantity I = Quantity II or Relation cannot be established

14) Find the difference between the total score of Virat in all the given five Matches together and the sum of the total score in Match4 and Match2 together?

a) 148
b) 152
c) 118
d) 147
e) None of these

15) What is the average total score of the all the five matches together?

a) 280
b) 260
c) 270
d) 250
e) None of these
Directions (16 – 20): Study the following graph carefully and answer the given questions.

The table shows the number of days taken by Swathi to complete the given percentage of work and the time ratio of Swathi to Shivani to complete the whole work.

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Percentage of a work done by Swathi</th>
<th>Number of days taken by Swathi</th>
<th>Days ratio of Swathi to Shivani to complete the whole work alone</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20%</td>
<td>5</td>
<td>5:4</td>
</tr>
<tr>
<td>B</td>
<td>50%</td>
<td>15</td>
<td>6:5</td>
</tr>
<tr>
<td>C</td>
<td>40%</td>
<td>12</td>
<td>2:1</td>
</tr>
<tr>
<td>D</td>
<td>15%</td>
<td>3</td>
<td>5:6</td>
</tr>
<tr>
<td>E</td>
<td>30%</td>
<td>6</td>
<td>5:4</td>
</tr>
</tbody>
</table>

16) Find the number of days taken by Sumaya to complete the Job-C alone?

**Statement I:** Swathi and Shivani started working to complete Job-C, Sumaya also joins with them to complete the work 4 days before the actual time taken by Swathi and Shivani working together.

**Statement II:** Swathi started working to complete Job-C with 75% of her original efficiency. After some days Sumaya joins with her and completed Job-C in 30 days.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

17) Find the total wage to complete Job-B?

**Statement I:** Swathi and Shivani started working to complete Job-B with their 20% and 25% less than the original efficiency respectively. The ratio of the number of days taken by Swathi and Shivani to complete Job-B is 3 : 4. The difference between their wages is Rs. 300.

**Statement II:** Shivani started working to complete Job-B. After 6 days Swathi also joins with her and increased her efficiency by 20%. Swathi left the work 5 days before the work was completed and get Rs. 8400 as wage.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

18) Find the total number of days taken to complete Job-A?

**Statement I:** Shivani started working to complete Job-A and after 5 days Janani joins with her. The ratio of the number of days they worked to complete Job-A is 35: 12.

**Statement II:** Sumi is 25% more efficient than Swathi to complete Job-A. They worked alternatively starting with Sumi to complete Job-A.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

19) Find the number of days taken by Krish alone to complete Job-D?

**Statement I:** Shivani and Krish started working to complete Job-D and the ratio of the number of days worked by Shivani to Krish is 5: 2.

**Statement II:** Shivani and Krish completes the Job-B in $(\frac{375}{88})$ days less than the total number of days taken by

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Shivani and Swathi working together till the work completed.
a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

20) What is the efficiency ratio of Janavi to Kamali?
**Statement I:** Shivani started working to complete Job-C and after 4 days, Janavi joins with him and after few days Janavi replaced by Kamali. The remaining work was completed in 5 days.

21) What is the efficiency ratio of Janavi to Kamali?
**Statement II:** Janavi and Kamali started working together to complete Job-B and completed the work same as the number of days taken by Shivani and Swathi working together.

Directions (21 – 25): Study the following information carefully and answer the given questions:
The given bar graph shows the number (in thousands) of products manufactured and line graph shows percentage of unsold products by a company over the years 2013 – 2017.

- **Manufactured (in thousands)**

  - 2013: 30
  - 2014: 35
  - 2015: 42
  - 2016: 28
  - 2017: 48
21) What is the average number of product sold in over the years 2013 to 2017?
   a) 28766  
   b) 27866  
   c) 28966  
   d) 37866  
   e) None of these

22) What is the ratio of defective to non defective product of the company in 2017?
   Statement I: The defective product of the company in 2017 is 80% of the unsold product of company in the year 2015.
   Statement II: Non defective product of the company in the year 2017 is half of the number of product manufactured in the year 2013.
   a) Only I  
   b) Only II  
   c) Either I or II sufficient  
   d) All I and II necessary to the answer the question  
   e) The question can’t be answered even with all I and II

23) What is the unsold product of the company in 2018?
   Quantity I: The number of products is manufactured by company in the year 2018 is 120% of the product manufactured in 2016. The ratio of the number of product sold and unsold in the year 2018 is 4 : 3.
   Quantity II: The number of unsold product in the year 2018 is equal to the number of defective product in the year 2014.
   a) Quantity I > Quantity II  
   b) Quantity I ≥ Quantity II  
   c) Quantity II > Quantity I  
   d) Quantity II ≥ Quantity I  
   e) Quantity I = Quantity II or Relation cannot be established

24) Sum of the difference between the sold and unsold product in 2014 and 2015 together is approximately what percent more than that of the total number of product unsold in the year 2013, 2016 and 2017 together?
   a) 105%  
   b) 93%  
   c) 72%  
   d) 66%  
   e) 117%

25) What is the average number of products manufactured by company 2014, 2016 and 2017 together?
   a) 35000  
   b) 39000  
   c) 37000  
   d) 34000  
   e) None of these
Directions (26-30): Study the following information carefully and answer the questions given below:
The line graph represents number of days taken by five boys to complete a piece of work.
The bar graph represents number of days taken by five girls to complete the piece of work.

26) Neeraj started the work and left after five days. Find the number of days taken by Pari and Riya to complete the remaining part of the work.
   a) 12 days
   b) 20 days
   c) 15 days
   d) 10 days
   e) None of these

27) Find the respective ratio of efficiencies of Murali and Tinku together and efficiencies of Surbhi and Sneha together.
   a) 3:5
   b) 5:7
   c) 4:5
   d) 3:4
   e) None of these

28) If Narayan and Jiya work alternately started with Narayan, find the number of days taken by them to complete the work.
   a) 22(1/5) days
   b) 25(1/4) days
   c) 23(1/6) days
   d) 27(1/2) days
   e) None of these

29) If all the girls work together, find the number of days taken by them to complete the work.
   a) 2200/279 days
   b) 4200/659 days
   c) 2100/559 days
   d) 1400/359 days
   e) None of these

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30) Keshav and Narayan started the work and left after four days. Find the number of days taken by Sneha to complete the remaining part of the work.

- a) 50/3 days
- b) 40/3 days
- c) 80/3 days
- d) 20/3 days
- e) None of these

Directions (31 -35): Study the following information carefully and answer the questions given below:

The pie chart represents percentage wise distribution of total number of students in five schools.
The table represents ratio of number of local students and non-local students.
Total number of students in five schools = 8000

31) Out of the total local students of school P 40% are girls. Find the difference between number of local girls and number of local boys in school P.

- a) 280
- b) 420
- c) 240
- d) 360
- e) None of these

32) Find the respective ratio of number of local students in school Q and number of non-local students in school S.

- a) 5:4
- b) 2:1
- c) 3:2
- d) 4:3
- e) None of these

33) Ratio of number of boys and number of girls in school R is 5:4 respectively. If out of the local students in school R, 60% are girls, find the number of non-local girls in school R.

- a) 160
- b) 540
- c) 240
- d) 480
- e) None of these
34) Number of local students in school T and school S together is what percent more/less than the number of local students in school P?
   a) 40% more
   b) 35% less
   c) 40% less
   d) 35% more
   e) None of these

35) Find the total number of non-local students in all the schools together.
   a) 5220
   b) 3840
   c) 2460
   d) 4220
   e) None of these

Directions (36 - 40): Study the following information carefully and answer the given questions:
The following bar graph shows the production of mobiles (In thousands) of different companies in two different years.

![Bar Graph](image)

<table>
<thead>
<tr>
<th>Company</th>
<th>Percentage of export in 2016</th>
<th>Percentage of Export in 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>B</td>
<td>42%</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>20%</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>30%</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>-</td>
<td>70%</td>
</tr>
<tr>
<td>F</td>
<td>25%</td>
<td>-</td>
</tr>
</tbody>
</table>

36) The average number of mobiles exported by company D and F in 2017 is 35000 while the mobiles exported by company D in 2016 is twice the export in 2017 then find the percentage of export by company F out of total production of company F in 2017?
   a) 65 %
   b) 72 %

37) If company E exported a total of 50000 mobiles in the year 2016 and 2017, then find the percentage of mobiles exported by company E in 2016?
   a) 35 %
   c) 80 %
   d) 85 %
   e) 92 %
b) 27.5 %
c) 20 %
d) 17.5 %
e) None of these

38) The total number of mobiles exported by company A in 2016 and 2017 is 2/3 of the mobiles exported by company C in these years then find the percentage of mobiles that were exported by company C out of total production in 2017 ?

a) 72 %
b) 56.25 %
c) 45 %
d) 64.75 %
e) 75 %

39) The 20% of the mobiles exported by company B in 2016 are defective while the ratio between the defective mobiles exported by company B in the year 2016 and 2017 is 7 : 5 and the percentage of defective mobiles out of total export by company B in 2017 is 13.5% then find the percentage of mobile exported by company B out of total production?

a) 45.66 %
b) 72.77 %
c) 48.55 %
d) 66.67 %
e) 56.33 %

40) Find the difference between the mobiles exported by company A, B and D in 2016 to that of the mobiles exported by company A and E in 2017?

a) 18500
b) 24200
c) 20600
d) 19700
e) None of these

Directions (41 - 45): Study the following information carefully and answer the given questions:

The following table represents time taken (in hours) by different pipes to fill a cistern. Some values are missing.

<table>
<thead>
<tr>
<th>Pipes</th>
<th>Time taken to fill the cistern</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>24</td>
</tr>
<tr>
<td>B</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>30</td>
</tr>
<tr>
<td>E</td>
<td>45</td>
</tr>
<tr>
<td>F</td>
<td>-</td>
</tr>
</tbody>
</table>

41) If A and C kept open for 4 hours then A is replaced by D and kept open for 5 more hours, the tank is filled. In how many hours pipe C alone can fill the cistern?

a) 7 ¾ hours
b) 13 ½ hours
c) 6 5/6 hours
d) 12 ¾ hours
e) None of these

42) Two pipes D and E are opened simultaneously to fill the cistern. After how much time should D be closed so that E alone can fill the cistern in another 20 hours?

a) 8 hours
b) 14 hours
c) 12 hours
d) 10 hours
e) None of these

43) If C takes half of the time taken by F to fill the cistern and F takes half of the time taken by B to fill the cistern and all of them working together can fill the cistern in 48 hours, What is the time taken by F to fill the cistern?

a) 152 hours
b) 144 hours
c) 186 hours
d) 168 hours
e) None of these

44) Two pipes A and D can fill the cistern. If they are opened on alternative hours and if pipe A is opened first, in how many hours will the cistern be full?

a) 24 (1/3) hours
b) 26 (3/5) hours
c) 26 (3/4) hours
d) 25 (1/2) hours
45) Three pipes A, D and F together can fill the cistern in 8 hours. Find the time taken by F alone to fill the cistern?
   a) 20 hours  
   b) 15 hours  
   c) 18 hours  
   d) 12 hours  
   e) None of these

Directions (46 - 48): Read the following information carefully and answer the given questions.

There are 400 students in a school in which 25% girls. All of them like at least one of the three different fruits viz. Mango, Apple and Papaya.

Boys: 10% likes Mango and Papaya together not Apple. 5% likes all the three fruits and 25% likes only Apple. 15% likes only Papaya.

Girls: 20% likes only Papaya and 15% likes Mango and Papaya but not Apple. 20% likes only Mango.

46) Find the ratio of the number of boys like Mango to the number of girls like Apple?
   Statement I: 10% of boys like Apple and Papaya but not Mango
   Statement II: 20% of boys like only Mango
   a) Statement I alone is sufficient to answer the question
   b) Statement II alone is sufficient to answer the question
   c) Either statement I alone or II alone is sufficient to answer the question
   d) Both the statements I and II together are not necessary to answer the question
   e) Both the statements I and II together are necessary to answer the question

47) If 20% of girls like Mango and Apple and 15% of girls like Only Apple. 50% of boys like Mango.
   Quantity I: Find the number of boys like Apple and Papaya but not Mango
   Quantity II: Find the number of girls like Apple and Papaya but not Mango
   Quantity III: If the number of girls like Mango and Apple but not Papaya is 2 more than the number of girls like Apple and Papaya but not Mango, then find the number of girls like all the three fruits.
   Which of the following should be placed in the blank spaces of the expression “Quantity I__Quantity II___Quantity III” from left to right with respect to the above statements?
   a) >, >
   b) <, >
   c) <, <
   d) >, <
   e) None of these

48) If the 20% of boys and 15% of girls like only Mango and Only Apple respectively, then find the difference between the number of boys and girls like at least two fruits.
   a) 75
   b) 90
   c) 80
   d) 110
   e) 55

Directions (49 -50): Study the following graph carefully and answer the given questions.

Train P started from station A towards station D with the speed of 40 Km/h at the same time train Q started from station D towards station A with the speed of 60 Km/h. All the four stations are in a straight line from left to right in the order A, B, C and D and distance between the consecutive stations is same (i.e.) 480 Km.

49) Which of the following statement is not true if train P and Q started from station A and B respectively at the end of 3 hours?
   a) Train Q covered 60 km more than the train P
   b) Train Q is 360 km far away from station C
   c) Train P is 360 km far away from station B
   d) The distance between train P and train Q is 1140 km
   e) All are true

50) At what time train P and Q will meet each other?
   a) 12 hours 20 minutes
   b) 13 hours 30 minutes
   c) 14 hours 20 minutes
   d) 14 hours 24 minutes
   e) None of these
Key with Solution

Direction (1 – 5):
Let us take the original time taken to cross 240 km distance be x hours
Time taken by train P to reach B = (X+1)
Time taken by train Q to reach B = (x+1) - 2 = (x-2)
Speed of train P = 240/(x+1)
Speed of train Q = 240/(x-2)
(240/(x+1))/(240/(x-2)) = 4/5
(x-2)/(x+1) = 4/5
5x-10=4x+4
X=14
Time taken by train P = 15 hrs
Time taken by train Q = 12 hrs
Speed of train P (S) = 240/15 = 16 kmph

Let the amount received by Anu = A
Let the amount received by Bharathi = 14000 - A
A + (A*5*10/100) = (14000 - A) + ((14000-A)*10*3/100)
A + A/2 = (14000-A) + 4200 - 3A/10
3A/2 = 18200 - A - 3A/10
3A/2 + A + 3A/10 = 18200
28A = 182000
A = 6500
Anu received (T) = Rs.6500
Initial amount = a
Second years = a*116/100
116a/100 = 23200
a = 20000

Third year = a*(116/100)*(116/100)
Fourth year = a*(116/100)*(116/100)*(116/100)
Difference of fourth and third year (U) = a*(116/100)*(116/100)*(116/100-1)
U = 20000*(116/100)*(116/100)*(16/100)
Difference of fourth and third year (U) = 4305.92
Cost price of car = V
6500 - V = 3(V-4500)
6500 - V = 3V - 13500
4V = 20000
V = 5000
1) Answer: c)
2) Answer: d)
3) Answer: c)
Quantity I:
Difference of fourth and third year (U) = 4305.92
Quantity II:
Anu received (T) = Rs.6500
Required difference = 6500 - 5000 = Rs.1500
5) Answer: a)

Directions (6-10):
6) Answer: a)
Quantity I: If the ratio of the marked price of item 1 and item 4 in shop E is 15: 14, and the marked price of shop D in item 1 is Rs. 7000. Find the selling price of item 4 in shop E?
Selling price of item 1 in shop D = 7000 * [(100 – 10)/100]
= 7000*(90/100) = Rs. 6300
Marked price of item 1 in shop E = [6300/(100-30)]*100
= 6300/70 * 100 = 9000
Marked price of item 4 in shop E = 9000 * (14/15) = 8400
Selling price of item 4 in shop E = 8400 * [(100-20)/100]
= 8400 * 80/100 = Rs. 6720
Quantity II: In item 2, if marked price in shop C is 25% more than the cost price and the profit percentage of shop C is 10% which is equal to 280. Find the cost price of shop D if marked price of item 2 in shop D is 10% more than the cost price?
Profit of item 2 in shop C = Rs. 280 = 10% of cost price of item 2 in shop C
Cost price of item 2 in shop C = 280*(100/10) = 2800

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Marked price of item 2 in shop C = 2800 * \[
\frac{(100 + 25)}{100}
\] = 3500
Selling price of item 2 in shop C = 3500 * \[
\frac{100 - 12}{100}
\] = 3500 * \[
\frac{88}{100}
\] = Rs. 3080
Marked price of item 2 in shop D = 3080 * \[
\frac{100}{(100 - 30)}
\] = (3080/70)*100 = 4400
Cost price of item 2 in shop D = (4400/110)*100 = Rs. 4000

Quantity I > Quantity II
7) Answer: c)

Quantity I: Item 3, cost price of all the shops is Rs. 4800 and the marked price is 40%, 50% and 25% more than the cost price in shop B, D and E respectively. Find the total selling price of shop B, D and E together

Marked price of item 3 in shop B = 4800 * \[
\frac{140}{100}
\] = 6720
Marked price of item 3 in shop D = 4800 * \[
\frac{150}{100}
\] = 7200
Marked price of item 3 in shop E = 4800 * \[
\frac{125}{100}
\] = 6000

Selling price of item 3 in shop B = 6720 * \[
\frac{100 - 16}{100}
\] = 6720 * \[
\frac{84}{100}
\] = 6048
Selling price of item 3 in shop D = 7200 * \[
\frac{100 - 20}{100}
\] = 5760
Selling price of item 3 in shop E = 6000 * \[
\frac{100 - 10}{100}
\] = 5400

Required total = (5644.8 + 5760 + 5400) = Rs. 16804.4

Quantity II: If the marked price of item 3 in shop B is 20% more than the cost price, which is 6000, find the marked price of item 3 in shop D

Cost price of item 3 in shop B = 6000
Marked price of item 3 in shop B = 6000 * \[
\frac{120}{100}
\] = 7200

Selling price of item 3 in shop B = 7200 * \[
\frac{100 - 16}{100}
\] = 7200 * \[
\frac{84}{100}
\] = 6048
Marked price of item 3 in shop D = 6048 * \[
\frac{100 - 20}{100}
\] = Rs. 7560

Quantity I < Quantity II
8) Answer: c)

Quantity I: In shop E, Cost price of item 1 is 800 more than the cost price of item 4 and the marked price of item 1 and 4 is 60% and 80% more than the cost price respectively. Find the selling price of item 4 if the selling price is same for both the items?

Cost price of item 4 in shop E = x
Cost price of item 1 in shop E = x+800
Marked price of item 1 in shop E = \[
\frac{(x+800)(160)}{100}
\] = \[
\frac{(x+800)(8)}{5}
\] = \[
\frac{8x + 6400}{5}
\]
Marked price of item 4 in shop E = \[
\frac{(x)(180)}{100}
\] = \[
\frac{180x}{100}
\] = \[
\frac{9x}{5}
\]

Selling price of item 1 in shop E = \[
\frac{(8x + 6400)}{5} \times \frac{70}{100}
\] = \[
\frac{(8x + 6400)}{5} \times \frac{7}{10}
\] = \[
\frac{56x + 44800}{5}
\]

Selling price of item 4 in shop E = \[
\frac{9x}{5} \times \frac{4}{5}
\] = \[
\frac{36x}{25}
\]

According to the question,

Selling price of both the items is same
\[
\frac{(8x + 6400)}{5} \times \frac{7}{10} = \frac{36x}{25}
\]

56x + (6400*7) = 36x*25

16x = (6400*7)
X = 2800

Selling price of item 4 in shop E = \[
\frac{36x}{25} \times \frac{2800}{25}
\] = Rs. 4032

Quantity II: If the marked price of item 3 in shop B is 20% more than the cost price, which is 6000, find the marked price of item 3 in shop D

Cost price of item 3 in shop B = 6000
Marked price of item 3 in shop B = 6000 * \[
\frac{120}{100}
\] = 7200

Selling price of item 3 in shop B = 7200 * \[
\frac{100 - 16}{100}
\] = 7200 * \[
\frac{84}{100}
\] = 6048
Marked price of item 3 in shop D = 6048 * \[
\frac{100 - 20}{100}
\] = Rs. 7560

Quantity I < Quantity II
9) Answer: a)

In shop D, if the ratio of marked price in item 1, item 2 and item 3 is 56: 72: 63 and the marked price of item 1 in shop B is Rs. 6300.
Selling price of item 1 in shop B = 6300 * (100-20)/100
=> 6300 * 80/100 = 5040
Marked price of item 1 in shop D = 5040 *(100/100-10)
=> 5040 * 100/90 = 5600
Marked price of item 2 in shop D = 5040 * (100/100-30)
=> 5040 *(100/70) = 7200
Marked price of item 3 in shop D = 5040 * (100/100-20)
=> 5040 * (100/80) = 6300

**Quantity I:** Find the marked price of item 2 in shop A
Selling price of item 2 in shop D = 7200 * [(100 – 30)/100]
=> 7200 * 70/100 = 5040
Marked price of item 2 in shop A = 5040 * (100/85) = Rs. 5929.4

**Quantity II:** Find the marked price of item 3 in shop E
Selling price of item 3 in shop D = 6300 * (100-20)/100
=> 6300 * (80/100) = 5040
Marked price of item 3 in shop E = 5040 * (100/90) = Rs. 5600

**Quantity I > Quantity II**

**10) Answer: a)**

**Quantity I:** Find the marked price of item 4 in shop A.
If the marked price of item 4 in shop E is Rs. 6300
Selling price of item 4 in shop E = 6300 * (100 – 20)/100
=> 6300 * 80/100 = 5040
Marked price of item 4 in shop A = 5040 * (100/70) = Rs. 7200

**Quantity II:** Find the marked price of item 2 in shop C.
If the marked price of item 2 in shop D is Rs. 4400
Selling price of item 2 in shop D = 4400 * (100-30)/100
=> 4400 * 70/100 = 3080
Marked price of item 2 in shop C = 3080 * (100/88) = Rs. 3500

**Quantity I > Quantity II**

**Direction (11 – 15)**

**Match1:**
Sachin score in Match1=60%
Virat score in Match1=100 = (100 - 60)% = 40%
Sachin score in match1=100*(60/40) =150
Total score in Match1= 100 + 150 =250

**Match2:**
Sachin score in match2= 60%
Virat score in match 2 = 40%
Difference = 60% - 40% = 20% = 60
100% = 300
Sachin score in match2= 60% = 300*60/100 = 180
Virat score in match 2 = 40% = 300*40/100 = 120

**Match3:**
Sachin score in match3 = (3/1)*48 = 144
Virat score in Match3 = (2/1)*48 = 96
Total score in match3 = 144 + 96 = 240

**Match4:**
Sachin score in Match4=78
Virat score in match4=78-18=60
Total score in match4=138

**Match5:**
Total Score in Match5 = 240*(100/80) = 300
Sachin score in Match5 = x – 60
Virat score in Match5 = x
X + x – 60 =300
2x=360
X=180
Sachin score in Match5= 120
Virat score in Match5=180

**11) Answer: a)**
From quantity I,
Average = (150+180+144+78+120)/5 = 134.4
From quantity II,
Average = (100+120+96+60+180)/5 =111.2

**Quantity I > Quantity II**
12) Answer: a)
From Statement I,
Sachin score in Match6=180*(50/100) = 90
Virat score in Match6=90*(80/100) = 72
So, Statement I alone is sufficient to answer the question.

From Statement II,
Sachin scored 40% runs in Match6.
So, Statement II alone is not sufficient to the answer the question.

13) Answer: a)
From quantity I,
Required percentage = (180/240)*100 = 75%
From quantity II,
Required percentage = (144/240)*100 = 60%
Quantity I > Quantity II

14) Answer: c)
Virat’s score = (100+120+96+60+180) = 556
Sum of Match4 and Match2=300+138 = 438
Difference = 556 – 438 =118

15) Answer: a)
Average= (250+300+240+138+300)/5=245.6

16) Answer: a)
Statement I:
Swathi and Shivani started working to complete Job-C, Sumaya also joins with them to complete the work 4 days before the actual time taken by Swathi and Shivani working together.

LCM of 15 and 30 = 30
Total work = 30 units
Swathi = 1 unit
Shivani = 2 units
No. of days taken by Swathi and Shivani working together = 30/(1+2) = 30/3 = 10 days
No. of days taken by Swathi, Shivani and Sumaya working together= 10 – 4 = 6 days
Swathi, Shivani and Sumaya work per day = 30/6 = 5 units
Sumaya work per day = 5 – 2 – 1 = 2 units
No. of days taken by Sumaya alone to complete the whole work = 30/2 = 15 days

Directions (16-20):
Total number of days taken by Swathi to complete Job-A = 5/20*100 = 25 days
Total number of days taken by Shivani to complete Job-A = 25/5 *4 = 20 days
Total number of days taken by Swathi to complete Job-B = 15/50*100 = 30 days
Total number of days taken by Shivani to complete Job-B = 30/6 *5 = 25 days
Total number of days taken by Swathi to complete Job-C = 12/40*100 = 30 days
Total number of days taken by Shivani to complete Job-C = 30/2 *1 = 15 days
Total number of days taken by Swathi to complete Job-D =3/15*100 = 20 days
Total number of days taken by Shivani to complete Job-D = 20/5 *6 = 24 days
Total number of days taken by Swathi to complete Job-E = 6/30*100 = 20 days
Total number of days taken by Shivani to complete Job-E = 20/5 *4 = 16 days

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Swathi</th>
<th>Shivani</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>B</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>E</td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>
Statement I alone is sufficient to answer the question.

**Statement II:** Swathi started working to complete Job-C with 75% of her original efficiency. After some days Sumaya joins with her and completed Job-C in 30 days. Here there is no information about Sumaya’s one day work. From that we cannot answer the given question. **Statement II alone is not sufficient to answer the question.**

17) Answer: c)

**Statement I:** Swathi and Shivani started working to complete Job-B with their 20% and 25% less than the original efficiency respectively. The ratio of the number of days taken by Swathi and Shivani to complete Job-B is 3 : 4. The difference between their wages is Rs. 300

- LCM of 25 and 30 = 150
- Total work = 150 units
- Swathi’s work per day = 5 units
- Swathi’s 80% efficiency = 5 * 80/100 = 4 units
- Shivani’s work per day = 6 units
- Shivani’s 75% efficiency = 6 * 75/100 = 4.5 units

According to the question,

\[(3x * 4) + (4x*4.5) = 150\]

\[12x + 18x = 150\]

\[30x = 150 \Rightarrow x = 5\]

Number of days worked by Swathi and Shivani is 15 and 20 days respectively.

- Swathi’s 15 days work = 4 * 15 = 60 units
- Shivani’s 20 days work = 20 * 4.5 = 90 units
- Difference between the total units done Shivani and Swathi = 90 – 60 = 30 units

Amount received to complete 30 units of total work = Rs. 300

Amount received to complete 150 units of total work = \((300/30)*150 = Rs. 1500\)

**Statement II:** Shivani started working to complete Job-B. After 6 days Swathi also joins with her and increased her efficiency by 20%. Swathi left the work 5 days before the work was completed and got Rs. 8400 as wage.

- LCM of 25 and 30 = 150
- Total work = 150 units
- Shivani’s work per day = 6 units

Swathi’s work per day = 5 units

Swathi’s 120% efficiency = 5 * 120/100 = 6 units

Total number of days worked by Shivani be x and Swathi be \((x – 11)\)

According to the question,

\[(x * 6) + ((x-11)*6) = 150\]

\[6x + 6x – 66 = 150\]

\[12x = 216\]

\[x = 18\]

Total work done by Shivani = 6 * 18 = 108 units

Total work done by Swathi = \((18 -11)*6 = 42\) units

Amount received by Swathi to complete 42 units is 8400

Total amount to complete 150 units = \(8400/42 * 150 = Rs. 30000\)

18) Answer: b)

**Statement I:** Shivani started working to complete Job-A and after 5 days Janani joins with her. The ratio of the number of days they worked to complete Job-A is 35: 12.

Here, there is no information about Janani’s individual work. From that we cannot answer the given question.

**Statement II:** Sumi is 25% more efficient than Swathi to complete Job-A. They worked alternatively starting with Sumi to complete Job-A.

Efficiency ratio of Sumi to Swathi = 125: 100 = 5: 4

Days ratio of Sumi to Swathi = 4: 5

Number of days taken by Sumi alone to complete the whole work = \((25/5) * 4 = 20\) days

LCM of 25 and 20 = 100

Total work = 100 units

Swathi’s work per day = 100/25 = 4 units

Sumi’s work per day = 100/20 = 5 units

Work done by Swathi and Sumi 2 days = 9 units

Work done by Swathi and Sumi 22 days = 9*11= 99 units

Remaining = 100 – 99 = 1 unit

Required number of days = 22 + 1/5 = 22 (1/5) days

19) Answer: b)

**Statement I:** Shivani and Krish started working to complete Job-D and the ratio of the number of days worked by Shivani to Krish is 5: 2.
Number of days worked by Shivani and Krish is 5x and 2x respectively.
Here, there is no information about Krish’s individual work. From that we cannot answer the given question.

**Statement II:** Shivani and Krish completes the Job-B in (375/88) days less than the total number of days taken by Shivani and Swathi working together till the work completed.

LCM of 30 and 25 = 150
Total work = 150 units
Swathi’s per day work = 5 units
Shivani’s per day work = 6 units
Total number of days taken by Swathi and Shivani to complete the whole work = 150/11 days
Total number of days taken by Shivani and Krish to complete the whole work = 150/11 – 375/88 = 825/88
Krish one day work = 88/875 – 1/25 = 11/165

<table>
<thead>
<tr>
<th>Number of days worked by Shivani and Krish is 5x and 2x respectively. Here, there is no information about Krish’s individual work. From that we cannot answer the given question.</th>
<th>Statement II alone is sufficient to answer the given question.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement II:</strong> Shivani and Krish completes the Job-B in (375/88) days less than the total number of days taken by Shivani and Swathi working together till the work completed.</td>
<td>20) Answer: e)</td>
</tr>
<tr>
<td>LCM of 30 and 25 = 150</td>
<td>Statement I: Shivani started working to complete Job-C and after 4 days, Janavi joins with him and after few days Janavi replaced by Kamali. The remaining work was completed in 5 days. From question there is no information about Kamali and Janavi alone to complete the whole work. Statement I alone is not sufficient to answer the given question.</td>
</tr>
<tr>
<td>Total work = 150 units</td>
<td>Statement II: Janavi and Kamali started working together to complete Job-B and completed the work same as the number of days taken by Shivani and Swathi working together. From question there is no information about Kamali and Janavi alone to complete the whole work. Statement II alone is not sufficient to answer the given question.</td>
</tr>
<tr>
<td>Swathi’s per day work = 5 units</td>
<td></td>
</tr>
<tr>
<td>Shivani’s per day work = 6 units</td>
<td></td>
</tr>
<tr>
<td>Total number of days taken by Swathi and Shivani to complete the whole work = 150/11 days</td>
<td></td>
</tr>
<tr>
<td>Total number of days taken by Shivani and Krish to complete the whole work = 150/11 – 375/88 = 825/88</td>
<td></td>
</tr>
<tr>
<td>Krish one day work = 88/875 – 1/25 = 11/165</td>
<td></td>
</tr>
</tbody>
</table>

**Direction (21-25):**

**21) Answer: a)**
In 2013 = (80/100)*30000 = 24000
In 2014 = (65/100)*35000 = 22750
In 2015 = (82/100)*42000 = 34440
In 2016 = (78/100)*28000 = 21840
In 2017 = (85/100)*48000 = 40800
Average = (24000 + 22750 + 34440 + 21840 + 40800)/5 = 28766

**22) Answer: c)**

**From Statement I,**
Defective product in 2017 = (80/100) * (18/100) * 42000 = 6048
Non defective product in 2017 = 48000 – 6048 = 41952
Required ratio = 6048: 41952 = 63: 437

**From Statement II,**
Non defective product in 2017 = 30000/2 = 15000
Defective product in 2017 = 48000 – 15000 = 33000
Required ratio =15000: 33000 = 5: 11
Either I or II is sufficient to answer the question.

**23) Answer: c)**

**From quantity I,**
Product which is going to manufactured in 2018 = (120/100)*28000 = 33600
Unsold product in 2018 = (3/7)*33600 = 14400

**From quantity II,**
The non defective product of the company in the year 2014
= > (80/100)*the number of product sold in 2013
= > (80/100)*30000*(30000/100000) = 19200
Defective product in 2014 = 35000 – 19200 = 15800
Number unsold product in 2018 = 15800

**Quantity I < Quantity II**

**24) Answer: b)**
Difference of sold and unsold product in 2014 = (30/100) * 35000 = 10500
Difference of sold and unsold product in 2015 = (64/100) * 42000 = 26880
Sum = 10500 + 26880 = 37380
Unsold product in 2017 = (15/100) * 48000 = 7200
Unsold product in 2016 = (22/100) * 28000 = 6160
Unsold product in 2013 = (20/100) * 30000 = 6000
Total = 7200 + 6160 + 6000 = 19360
Required percentage = [(37380 – 19360)/19360] * 100 = 93%
25) Answer: c)
Average of products manufactured = \((35000 + 28000 + 48000)/3 = 37000\)

Directions (26 -30):
26) Answer: c)
Let, required number of days = \(n\)
\(5/25 + n/30 + n/50 = 1\)
\(=> 1/5 + (5n + 3n)/150 = 1\)
\(=> 8n/150 = 1 - 1/5\)
\(=> 8n/150 = (5 - 1)/5\)
\(=> n = 150/8 \times 4/5\)
\(=> n = 15 \text{ days}\)

27) Answer: b)
Efficiency of Murali = \(1/35\)
Efficiency of Tinku = \(1/40\)
Efficiency of Surbhi = \(1/20\)
Efficiency of Sneha = \(1/40\)
Required ratio = \((1/35 + 1/40) : (1/20 + 1/40)\)
\(= (8 + 7)/280 : (2 + 1)/40\)
\(= 15/280 : 3/40\)
\(= 5:7\)

28) Answer: b)
Part of work done in 2 days = \(1/20 + 1/35\)
\(=> \text{Part of work done in 2 days} = (7 + 4)/140\)
\(=> \text{Part of work done in 2 days} = 11/140\)
\(=> \text{Part of work done in 2 x 12 days} = 11/140 \times 12\)

Directions (31 -35):
31) Answer: c)
Number of students in school P = \(24/100 \times 8000 = 1920\)
Number of local students in school P = \(5/8 \times 1920 = 1200\)
Number of local girls in school P = \(40/100 \times 1200 = 480\)
Number of local boys in school P = \(1200 - 480 = 720\)
Required difference = 720 – 480 = 240

32) Answer: b)
Total number of students in school Q = \(30/100 \times 8000 = 2400\)
Number of local students in school Q = \(3/5 \times 2400 = 1440\)
Total number of students in school S = \(12/100 \times 8000 = 960\)

33) Answer: a)
Number of students in school R = \(18/100 \times 8000 = 1440\)
Number of girls in school R = \(4/9 \times 1440 = 640\)
Number of local students in school R = \(5/9 \times 1440 = 800\)
Number of local girls in school R = \(60/100 \times 800 = 480\)
Number of non-local girls in school R = \(640 – 480 = 160\)

34) Answer: c)
Total number of students in school T = \(16/100 \times 8000 = 1280\)
Number of local students in school T = \(3/8 \times 1280 = 480\)
Total number of students in school S = \( \frac{12}{100} \times 8000 = 960 \)
Number of local students in school S = \( \frac{1}{4} \times 960 = 240 \)
Total number of students in school P = \( \frac{24}{100} \times 8000 = 1920 \)
Number of local students in school P = \( \frac{5}{8} \times 1920 = 1200 \)
Total number of local students in school T and school S together = 480 + 240 = 720
Required percentage = \( \frac{1200 - 720}{1200} \times 100 = 40\% \) less

35) Answer: b)

Total number of students in school P = \( \frac{24}{100} \times 8000 = 1920 \)
Number of non-local students in school P = \( \frac{3}{8} \times 1920 = 720 \)
Total number of students in school Q = \( \frac{30}{100} \times 8000 = 2400 \)
Number of non-local students in school Q = \( \frac{2}{5} \times 2400 = 960 \)
Total number of students in school R = \( \frac{18}{100} \times 8000 = 1440 \)
Number of non-local students in school R = \( \frac{4}{9} \times 1440 = 640 \)
Total number of students in school S = \( \frac{12}{100} \times 8000 = 960 \)
Number of non-local students in school S = \( \frac{3}{4} \times 960 = 720 \)
Total number of students in school T = \( \frac{16}{100} \times 8000 = 1280 \)
Number of non-local students in school T = \( \frac{5}{8} \times 1280 = 800 \)
Required sum = 720 + 960 + 640 + 720 + 800 = 3840

Directions (36 -40):
36) Answer: b)
Total mobiles exported by company D and F = 35000*2 = 70000
Mobile exported by company D in 2016 = \( \frac{30}{100} \times 35000 = 10500 \)
Mobile exported by company D in 2017 = 10500/2 = 5250
Required difference = 58000 – 37400 = 20600

37) Answer: b)
Mobile exported by company F = 70000 – 5250 = 64750
Percentage of production exported by company F in 2017 = \( \frac{64750}{90000} \times 100 = 72\% \)

38) Answer: d)
Total number of mobiles exported by company A in 2016 and 2017 = \( \frac{40}{100} \times 20000 + \frac{60}{100} \times 50000 \)
= \( 8000 + 30000 = 38000 \)
Mobile exported by company C in 2016 and 2017 = \( \frac{38000}{2} = 57000 \)
Mobile exported by company C in 2017 = \( 57000 – 26000 \times \frac{20}{100} \)
= \( 51800 \)
Percentage of export by company C in 2017 = \( \frac{51800}{80000} \times 100 = 64.75\% \)

39) Answer: d)
Number of defective mobile exported by B in 2016 = \( \frac{45000 \times 42}{100} \times \frac{20}{100} = 3780 \)
Number of defective mobile exported by company B in 2017 = \( \frac{3780}{7} \times 5 = 2700 \)
Number of mobiles exported by company B = \( \frac{(2700 \times 13.5)}{100} = 20000 \)
Percentage of mobile exported by company B in 2017 = \( \frac{(20000 \times 30000)}{100} = 66.67\% \)

40) Answer: c)
Mobile exported by A, B and D in 2016 = \( 20000 \times \frac{40}{100} + 45000 \times \frac{42}{100} + 35000 \times \frac{30}{100} \)
= \( 8000 + 18900 + 10500 = 37400 \)
Mobile exported by company A and E in 2017 = \( 50000 \times \frac{60}{100} + 40000 \times \frac{70}{100} \)
= \( 30000 + 28000 = 58000 \)
Directions (41 -45):
41) **Answer: b)**
Let C takes x hours to fill the cistern,
According to the question:
\[
\frac{4}{24} + \frac{4}{x} + \frac{5}{x} + \frac{5}{30} = 1 \\
⇒ \frac{1}{6} + \frac{9}{x} + \frac{1}{6} = 1 \\
⇒ \frac{2}{6} + \frac{9}{x} = 1 \\
⇒ \frac{1}{3} + \frac{9}{x} = \frac{2}{3} \\
⇒ x = \frac{27}{2} = 13 \frac{1}{2} \text{ hours} \\
\]
C alone can fill the cistern in 13 \frac{1}{2} hours

42) **Answer: d)**
Let D should be closed after x hours, \(\frac{x}{30} + \frac{x}{45} + \frac{20}{45} = 1\)
\[
⇒ \frac{3x + 2x}{90} = 1 - \frac{4}{9} \\
⇒ \frac{5x}{90} = \frac{5}{9} \\
⇒ x = 10 \text{ hours} \\
\]
D should be closed after 10 hours

43) **Answer: d)**
C takes half of the time taken by F to fill the cistern 
= \(\frac{C}{F} = 1 : 2\)
F takes half of the time taken by B to fill the cistern 
= \(\frac{F}{B} = 1 : 2\)
The ratio of C, F and B taken to fill the cistern = \(1 : 2 : 4\) \((x, 2x, 4x)\)

According to the question:
\[
\frac{1}{x} + \frac{1}{2x} + \frac{1}{4x} = \frac{1}{48} \\
⇒ (4 + 2 + 1)\frac{1}{4x} = 1/48 \\
⇒ 7/4x = 1/48 \\
⇒ 4x = 48 \times 7 \\
⇒ x = 84 \text{ hours} \\
\]
Time taken by F to fill the cistern = \(2 \times 84 = 168\) hours

44) **Answer: b)**
Part of the tank filled in 2 hours = \(\frac{1}{24} + \frac{1}{30} = \frac{3}{40}\)
\[
⇒ \text{Part of the tank filled in 26 hours} = (\frac{3}{40}) \times 13 = \frac{39}{40} \\
\]
Remaining part = \(1 - \frac{39}{40} = \frac{1}{40}\)
Time taken by A to fill the remaining part,
\[
⇒ (\frac{1}{40}) \times 24 = \frac{3}{5} \\
\]
Total time = \(26 + \frac{3}{5} = 26 \frac{3}{5}\) hours

45) **Answer: a)**
Let the time taken by F to fill the cistern be \(x\),
According to the question,
\[
\frac{1}{24} + \frac{1}{30} + \frac{1}{x} = \frac{1}{8} \\
\frac{1}{x} = \frac{1}{8} - \left(\frac{1}{24} + \frac{1}{30}\right) \\
\frac{1}{x} = \frac{1}{8} - \frac{1}{40} \\
\frac{1}{x} = \frac{2}{40} \\
1/x = 1/20 \\
\]
F alone to fill the cistern is 20 hours

Directions (46 - 48):

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46) Answer: a) 
Number of girls like Apple = 100 – (Number of girls not like apple) 
= 100 – [100*(20+15+20) %] 
= 100 – (100*55/100) 
= 100 – 55 = 45 
**From statement I,** 
Number of boys like Mango = 300 – (Number of boys not like Mango) 
= 300 – [300*(15+20+10) %] 
= 300 – (300 * 45/100) 
= 300 – 135 
= 165 
Required ratio = 165: 45 
= 11: 5 

Hence, Statement I alone is sufficient to answer the question 

**From statement II,** 
Number of boys like Mango = 300 – (Number of boys not like Mango) 
= 300 – [300*(20+10+5+No of boys like Mango & Apple but not Papaya)] 
From that, we could not able to find the ratio because there is no information about the number of boys like Mango & Apple but not Papaya. 
**Hence, Statement II alone is not sufficient to answer the question**

47) Answer: d) 
20% of girls like Mango and Apple and 15% of girls like Only Apple. 50% of boys like Mango.
Boys:
(x+y+5%+10%) = 50%
(x+y) = 50% - 15% = 35%
=> z = 100% - (10%+15%+5%+25%+35%)
=> z = 100% - 90% = 10%

Girls:
(a + b) = 20%
=> c = 100% - (20%+15%+20%+15%+20%)
=> c = 100% - 90% = 10%

Quantity I: Find the number of boys like Apple and Papaya but not Mango
Required total = z = 10% of 300
= 10/100 * 300
= 30

Quantity II: Find the number of girls like Apple and Papaya but not Mango
Required total = c = 10% of 100
= 10/100 * 100
= 10

Quantity III: If the number of girls like Mango and Apple but not Papaya is 2 more than the number of girls like Apple and Papaya but not Mango, then find the number of girls like all the three fruits.
Number of girls like Mango and Apple = 20/100 * 100
= 20
(a + b) = 20
The number of girls like Mango and Apple but not Papaya = 2 + the number of girls like Apple and Papaya but not Mango
=> a = c + 2
=> a = (10/100 * 100) + 2
=> a = 12

Quantity I > Quantity II < Quantity III
48) Answer: a)

Number of boys like at least two fruits = 300 – (Boys like only one fruit)
= 300 – [300*(20%+15%+25%)]
= 300 – (300*60/100)
= 300 – 180
= 120

Number of girls like at least two fruits = 100 – (Girls like only one fruit)
= 100 – [100*(20+15+20)%]
= 100 – (100*55/100)
= 100 – 55
= 45

Required difference = 120 – 45
= 75
49) Answer: b)

Train P covered \((3 \times 40) = 120\) km at the end of 3 hours
Train Q covered \((3 \times 60) = 180\) km at the end of 3 hours

50) Answer: d)

Total distance = \((480 \times 3) / (40 + 60)\)
= \(1440 / 100\)
= 14.4 hours (or) 14 hours 24 minutes