Direction (01 – 05): Read the following information carefully and answer the questions based on it.

The pie chart given below shows the % or degree distribution of the number of boys in five different colleges. The table given below shows the average number of boys and girls together in these five colleges, % of the number boys belongs to Delhi out of total students in a particular college and % of number of girls belongs to outside Delhi out of the total number of girls in that college.

<table>
<thead>
<tr>
<th>College</th>
<th>Average of boys and girls together</th>
<th>% of boys belongs to Delhi</th>
<th>% of girls belongs to outside Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2530</td>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td>B</td>
<td>2250</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>C</td>
<td>4000</td>
<td>45%</td>
<td>43.75%</td>
</tr>
<tr>
<td>D</td>
<td>1870</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>E</td>
<td>1750</td>
<td>31.25%</td>
<td>50%</td>
</tr>
</tbody>
</table>

1) Find the difference between the number of boys who belongs to outside Delhi from college E and number of girls belongs to outside Delhi from college E?
   a) 64
   b) 104
   c) 94
   d) 84
   e) None of these

2) Find the total number of boys in college A is approximately how much % more or less than the total number of students who belongs to outside Delhi in college C?
   a) 8.5%
   b) 7.9%
Five companies manufactured three types of products – Laptops, Desktops and LEDs. Some of the products manufactured by the company are defective. The bar graph given below shows the % of non – defective Laptops and Desktops out of the total number of non – defective products manufactured by a particular company and % of defective products out of the total number of products manufactured by the company. Number of Non – defective LEDs manufactured by company A, B, C, E and D was 1848, 2880, 4320, 1517 and 3744 respectively.

Total number of products manufactured = Defective products manufactured + Non Defective products manufactured

6) Find the difference between the number of Non – defective Laptops manufactured by company C and Company D?
   a) 2082
   b) 2062
   c) 2092
   d) 2072
e) None of these

7) Number of Non-defective Desktops manufactured by company D is approximately how much % of the number of non-defective Laptops manufactured by company E?
   a) 52%
   b) 50%
   c) 53%
   d) 51%
   e) 49%

8) Find the total number of defective items manufactured by all companies together?
   a) 19474
   b) 19274
   c) 19374
   d) 18374
   e) 18274

9) Total number of Non-Defective Laptops manufactured by all companies together is how much % of total number Non-Defective Desktops manufactured by all companies together?
   a) 110.6%
   b) 110.2%
   c) 107.9%
   d) 108.6%
   e) 108.2%

10) Find total number of products manufactured by all companies together?
   a) 68410
   b) 67410
   c) 68310
   d) 67310
   e) None of these

Direction (11 – 16): Read the following information carefully and answer the questions based on it.

Three are three types of buses Normal (A and B), Luxury (P and Q) and Volvo (M). Each bus has two classes – Sleeper and General class. The ratio of number of Seats in Sleeper class and general class of bus A is in 3:2 and the number of seats in a general class of bus B is 57(1/7)% more than the sleeper class of same Bus. Number of seats in the sleeper class of Bus P is 25 less than that of Bus B. Number of seats in the General class and the Sleeper class of Bus P is the same. Number of seats in the general class of bus Q is 50% of seats in the sleeper class of the same Bus. Ratio of the number of seats in the sleeper class of Bus B and that of Bus Q is in the ratio of 5:12 respectively. Ratio of the number of seats in the General class and Sleeper class of Bus M is in the ratio of 65:39 respectively. Total seats in Sleeper class and general class of bus Q and M together is 615 and 535 respectively. Total number of seats in the sleeper class of buses A and B together is 415.

11) If 45% of seats in Sleeper class and 60% of seats of the general class of bus Q is occupied by male passengers and the rest seats are
occupied by female passengers, then find the total number of female passengers in Bus Q. (Only one person is allowed to sit on one seat).

14) Find the average number of seats in the general class of all buses together?
   a) 234
   b) 214
   c) 204
   d) 244
   e) None of these

15) Find the difference between the number of seats in the sleeper class of bus A and bus M?
   a) 55
   b) 65
   c) 85
   d) 45
   e) None of these

16) Find the total number of seats in bus B is how much % more or less than that of bus P?
   a) 50%
   b) 66.66%
   c) 75%
   d) 25%
   e) None of these

Direction (17 – 21): Find the value of the question mark (?) in the following given number series.

17) 128, 245, (?), 520, 766, 787
   a) 453
   b) 493
   c) 443
   d) 343
   e) None of these
e) None of these

22) 7ab5 is a four-digit number, find the value of \((a^2/b + 8)\)
Statement I: ab is exactly divisible by 12.
Statement II: The number is exactly divisible by 25. value of a is not 1.

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

23) Two vessels A and B contain mixtures of milk and water in the ratio of 5:7 and 8:9 respectively. Find the quantity of water in vessel A.
Statement I: if 28.56% of the mixture from vessel A is removed and mixed with vessel B, then the amount of water in vessel B becomes 271 ml.
Statement II: The amount of milk in vessel B is 85 ml more than the amount of milk in vessel A.

a) Only I is sufficient to answer the question
b) Only II is sufficient to answer the question
c) Both statements together are sufficient to answer the question
d) Either I or II is sufficient to answer the question
e) Both statements together are not sufficient to answer the question
24) Length of train X is twice of train Y. Find the speed of train Y, if train X can cross the train Y in 30 seconds while running in the opposite direction.

Statement I: Train X and Train Y can cross the pole in 45 seconds and 18 seconds respectively.
Statement II: Train X can cross the platform of length 2700 meters in 90 seconds.

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

25) Rakshit bought two articles A and B at Rs. P and Rs. Q respectively and spent Rs. 100 each for maintenance of the articles. Find the value of (P + Q).

Statement I: When Rakshit sold article A at 25% profit and article B at 30% profit then there is an overall profit of 27.7272...% on the overall transaction.
Statement II: When Rakshit sold article A at 10% profit article B at 120% profit, so there is an overall profit of 70% on the overall transaction.

a) Only I is sufficient to answer the question
b) Only II is sufficient to answer the question
c) Both statements together are sufficient to answer the question
d) I and II only
b) I, II and IV only
c) IV only
d) I, II, III and IV
e) None of these

26) Cost price of an article is Rs. P and it is marked up Rs. 240 above its cost price and sold after discount of 20%. Profit % on selling the article is Q%. Find which of the value(s) can satisfy the pair (P, Q).

I. 160, 100
II. 260, 700/13
III. 100, 162
IV. 360, 33.33%
a) I and II only
b) I, II and IV only
c) IV only
d) I, II, III and IV
e) None of these

27) Number of boys in a class is 36 more than the number of girls in a class. While the ratio of average amount contributed for farewell party of girl and boy is 1:2 respectively. Find the total number of students in the class, if the average amount contributed by all students is 83.33% of average amount contributed by boys.

a) 108
b) 96
c) 120
d) 136
e) None of these
28) Number of articles sold by shopkeeper A is 35 more than 80% of number of articles sold by shopkeeper B. Ratio of number of articles sold by shopkeeper A and C is 5:8 respectively and shopkeeper C sold 70 articles more than the shopkeeper B. if shopkeeper C sold each article at Rs. 275, then find total revenue generated by article C.
   a) Rs. 20625
   b) Rs. 32625
   c) Rs. 33000
   d) Rs. 34000
   e) None of these

29) A vessel in the shape of triangle having base area of 64 cm² is filled with lemon juice up to the height of 18 cm. There is another vessel in shape of cube whose total surface area is 512 cm² is completely immersed in the triangle shape vessel. Find the ratio of new height up to lemon juice is filled and initial height up to lemon juice is filled.
   a) 13:11
   b) 13:9
   c) 12:11
   d) 13:7
   e) None of these

30) A train can cross a platform in 97.2 seconds and a person on bicycle is running with speed of 15 km/h in same direction as that of train in 54 seconds. Find the time taken by another person to cross the platform whose speed is twice of the person on bicycle and length of platform is same as that of train?
   a) 14.86 seconds
   b) 11.62 seconds
   c) 11.92 seconds
   d) 13.43 seconds
   e) None of these

31) Speed of boat in still water is 340% more than the speed of stream. A boat can travel upstream distance of 612 km in 12 hours. Find the difference between the time taken by boat to travel downstream distance in 7 hours and distance travelled by boat in still water in 13 hours.
   a) 391 km
   b) 261 km
   c) 281 km
   d) 291 km
   e) None of these

32) A mixture of milk and water in the ratio of 3:1. 80 ml of mixture is removed and replaced by water and then 100 ml of mixture is removed and replaced by water so, the amount of water in the final mixture becomes 220 ml. find the initial quantity of milk in the mixture?
   a) 200 ml
   b) 600 ml
   c) 400 ml
   d) 300 ml
   e) None of these
33) P invested Rs. K for 2 years @ 50% per annum earning compound interest. He then lent the interest received by him after 2 years to B. B invested the money for 3 years at 40% per annum compound interest. After 3 years, B gives (K + 115800) to C and rest of the amount he invested in the bank, then is he earning simple interest for 4 years at 20% per annum is Rs. 24000. Find the amount given to C?

a) Rs. 176800
b) Rs. 175800
c) Rs. 165800
d) Rs. 185800
e) None of these

34) Ratio of efficiency of P and Q is in the ratio of 7:5. P started the work alone and completes 70% of the work in 2D days and remaining work completed by Q in (D + 4.8) days. Find approx. difference between the time taken by P and Q to complete the work alone?

a) 28.4 days
b) 27.4 days
c) 29.4 days
d) 29.8 days
e) 27.8 days

35) Ramesh starting a business with an initial investment of Rs. M, after 2 months Riya joins him. After another 2 months, Ramesh withdraws 25% of the initial capital and Riya withdraws 37.5% of the initial capital after 5 months of joining the business, leaving an amount which is 60% of the initial investment of Ramesh. At the end of the year, if the total profit earned is Rs. 58740, then find the profit share of Ramesh?

a) Rs. 33000
b) Rs. 44000
c) Rs. 66000
d) Rs. Rs. 25740
e) None of these

### Answers

**Directions (1-5):**

% of boys in college B out of total number of boys in all colleges together = 54/360 x 100 = 15%

% of boys from college D out of total number of boys in all colleges together = 45/360 x 100 = 12.5%

So, 100% = 25% + 15% + 5760 + 12.5% + 10% = 37.5% of total boys = 5760

So total number of boys in all colleges together = 5760/37.5 x 100 = 15360

Number of boys in college A = 25% of 15360 = 3840

Total number of students in college A = 2530 x 2 = 5060

Number of girls in college A = 5060 – 3840 = 1220
Number of boys who belongs to Delhi = 35% of 3840 = 1344
Number of boys belongs to outside Delhi = 3840 – 1344 = 2496
Number of girls who belongs to outside Delhi = 40% of 1220 = 488
Number of girls who belongs to Delhi = 1220 – 488 = 732

Similarly, we can find the data for all colleges

<table>
<thead>
<tr>
<th>College</th>
<th>Total students</th>
<th>Number of boys</th>
<th>Number of girls</th>
<th>Number of boys belong to Delhi</th>
<th>Number of girls belong to Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5060</td>
<td>3840</td>
<td>1220</td>
<td>1344</td>
<td>488</td>
</tr>
<tr>
<td>B</td>
<td>4500</td>
<td>2304</td>
<td>2196</td>
<td>1152</td>
<td>549</td>
</tr>
<tr>
<td>C</td>
<td>8000</td>
<td>5760</td>
<td>2240</td>
<td>2592</td>
<td>3168</td>
</tr>
<tr>
<td>D</td>
<td>3740</td>
<td>1920</td>
<td>1820</td>
<td>480</td>
<td>1440</td>
</tr>
<tr>
<td>E</td>
<td>3500</td>
<td>1536</td>
<td>1904</td>
<td>480</td>
<td>1056</td>
</tr>
<tr>
<td>Total</td>
<td>24800</td>
<td>15360</td>
<td>9440</td>
<td>6048</td>
<td>9312</td>
</tr>
</tbody>
</table>

1) Answer: E
According to the question,
Number of boys who belongs to outside Delhi from college E = 1056
Number of girls belongs to outside Delhi from college E = 982
Required difference = 1056 – 982 = 74
Hence answer is option E

2) Answer: C

Total number of boys in college A = 3840
Total number of students who belongs to outside Delhi from college C = 3168 + 980 = 4148
Required ratio = (4148 – 3840)/4148 x 100 = 7.4%
Hence answer is option C

3) Answer: A
Total number of students who belongs to Delhi in college D = 480 + 1274 = 1754
Total number of students in college D = 3740
Required % = 1754/3740 x 100 = 47%
Hence answer is option A

4) Answer: D
Number of students who belongs to Delhi from college C = 2592
Number of students who belongs to Delhi from college C = 1260
Required average = (2592 + 1260)/2 = 1926
Hence answer is option D

5) Answer: B
Total number of girls who belongs to Delhi in all colleges together = 5895
Total number of boys who belongs to outside Delhi in all colleges together = 9312
Required % = 5895/9312 x 100 = 63.3%
Hence answer is option B

Directions (6-10):
For Company A,
Number of Non – Defective Laptops and Desktops manufactured by the company = (30% + 48%) of the total number of non – defective products manufactured by company = 78% of non – defective products
So, non – defective LEDs manufactured by the company = 22% of non-defective
So, 22% of non – defective = 1848
So, number of Non defective products manufactured by the company = 1848/22 x 100 = 8400
Number of defective products manufactured = 30% of total products manufactured
So, number of non – defective products manufactured = 70% of total products manufactured
70% of total products manufactured = 8400
So total products manufactured by the company = 8400/70 x 100 = 12000
Number of defective products manufactured = 30% of 12000 = 3600
Number of Non – Defective Laptops Manufactured = 30% of 8400 = 2520
Number of Non – Defective Desktops Manufactured = 48% of 8400 = 4032
Similarly we can find the data for all companies.

<table>
<thead>
<tr>
<th>Company</th>
<th>Total products</th>
<th>Non-defective Products</th>
<th>Defective Laptops</th>
<th>Non-defective Desktops</th>
<th>Non-defective LEDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12000</td>
<td>8400</td>
<td>3600</td>
<td>2520</td>
<td>4032</td>
</tr>
<tr>
<td>B</td>
<td>11250</td>
<td>7200</td>
<td>4050</td>
<td>2304</td>
<td>2016</td>
</tr>
<tr>
<td>C</td>
<td>15360</td>
<td>9600</td>
<td>5760</td>
<td>2400</td>
<td>2880</td>
</tr>
<tr>
<td>D</td>
<td>15000</td>
<td>11700</td>
<td>3300</td>
<td>4914</td>
<td>3042</td>
</tr>
<tr>
<td>E</td>
<td>14800</td>
<td>12136</td>
<td>2664</td>
<td>6068</td>
<td>4551</td>
</tr>
</tbody>
</table>

6) Answer: E
According to the question,
Number of Non – defective Laptops manufactured by company C = 2400
Number of Non – defective Laptops manufactured by company D = 4914
Required difference = 4914 – 2400 = 2514
Hence answer is option E

7) Answer: B
Number of Non – Defective Desktops manufactured by company D = 3042
Number of non – defective Laptops manufactured by company E = 6068
Required % = 3042/6068 x 100 = 50%
Hence answer is option B

8) Answer: C
Total number of defective items manufactured by all companies together = 3600 + 4050 + 5760 + 3300 + 2664 = 19374

9) Answer: B
Total number of Non-Defective Laptops manufactured by all companies together = 2520 + 2304 + 2400 + 4914 + 6068 = 18206
Total number Non-Defective Desktops manufactured = 4032 + 2016 + 2880 + 3042 + 4551 = 16521
Required % = 18206/16521 x 100 = 110.2%
Hence answer is option B

10) Answer: A
Required sum = 12000 + 11250 + 15360 + 15000 + 14800 = 68410
Hence answer is option A

Directions (11-16):
Let the number of seats in sleeper class and general class of bus A is 3a and 2a respectively.
Let the number of seats in sleeper class of bus B = 35b
So number of seats in general class of bus B = 11/7 x 35b = 55b
Number of seats in sleeper class of bus P = general class of bus P = 35b – 25
Number of seats in sleeper class of bus Q = 12/5 x 35b = 84b
Number of buses in general class of bus Q = 50% of 84b = 42b

Let the number of seats in general class and sleeper class of bus M is in ratio of 65c and 39c respectively.
Now, 84b + 39c = 615…………… (1)
Also, 42b + 65c = 535…………… (2)
Apply, 2 x equation (2) – equation (1), we get
(130c – 39c) = 2 x 535 – 615 =
So, value of c = 455/91 = 5
On putting value of c in equation 2, we get
42b = 535 - 325
So, value of b = 5
Number of seats in sleeper classes of buses A and B together = 415
Number of seats in sleeper class of bus B = 35 x 5 = 175
So the number of seats in the sleeper class of bus A = 415 – 175 = 240
So the number of seats in the general class of bus A = 2/3 x 240 = 160
Now, we can find the data related to the number of seats of all buses.

<table>
<thead>
<tr>
<th>Buses</th>
<th>Sleeper class</th>
<th>General Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>240</td>
<td>160</td>
<td>400</td>
</tr>
<tr>
<td>B</td>
<td>175</td>
<td>275</td>
<td>450</td>
</tr>
<tr>
<td>P</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>Q</td>
<td>420</td>
<td>210</td>
<td>630</td>
</tr>
<tr>
<td>M</td>
<td>195</td>
<td>325</td>
<td>520</td>
</tr>
<tr>
<td>Total</td>
<td>1180</td>
<td>1120</td>
<td>2300</td>
</tr>
</tbody>
</table>
11) Answer: C
According to the question,
Number of female passengers in sleeper class of bus Q = 420 × 55% = 231
Number of female passengers in General class of bus Q = 210 × 40% = 84
Total number of female passengers in bus Q = 231 + 84 = 315
Hence answer is option C

12) Answer: A
Number of male passengers in sleeper class of normal buses = 40% of (240 + 175) = 40% of 415 = 166
Number of female passengers in sleeper class of normal buses = 60% of 415 = 249
Number of female passengers in general class of normal buses = 1/3 of (160 + 275) = 1/3 of 435 = 145
Number of male passengers in general class of normal buses = 2/3 of 435 = 290
Total revenue generated = 69 × (166 + 290) + 24 × (249 + 145) = 31464 + 9456 = Rs. 40920

13) Answer: B
Number of seats in bus N = 165% of 520 = 858
Number of seats in general class of bus N = 7/13 × 858 = 462
Hence answer is option B

14) Answer: E
Required average = (160 + 275 + 150 + 210 + 325)/5 = 1120/5 = 224

15) Answer: D
Required difference = 240 – 195 = 45
Hence answer is option D

16) Answer: A
Total number of seats in bus B = 450
Total number of seats in bus P = 300
Required % change = (450 – 300)/300 × 100 = 50%
Hence answer is option A

17) Answer: C

<table>
<thead>
<tr>
<th>128</th>
<th>245</th>
<th>443</th>
<th>520</th>
<th>766</th>
<th>787</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>198</td>
<td>77</td>
<td>246</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

+ 81 - 121 169 - 225
(+ 9²) (- 11²) (+ 13²) (- 15²)

18) Answer: A
1098 + (2 × 3) = 1104
1104 – (4 × 5) = 1084
1084 + (6 × 7) = 1126
1126 – (8 × 9) = 1054
1054 + (10 × 11) = 1164
Hence answer is option A

19) Answer: D
191 + 3⁰ = 192
192 – 3¹ = 189
189 + 3² = 198
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198 - 3³ = 171
171 + 3⁴ = 252
252 – 3⁵ = 9
Hence answer is option D

20) Answer: B
12 x 1.5 + 10 = 28
28 x 2.5 + 30 = 100
100 x 3.5 + 50 = 400
400 x 4.5 + 70 = 1870
1870 x 5.5 + 90 = 10375
Hence answer is option B

21) Answer: C
Logic = number + (consecutive prime number starting from 61 + consecutive natural number starting from 2)
161 + (61 + 2) = 224
224 + (67 + 3) = 294
294 + (71 + 4) = 369
369 + (73 + 5) = 447
447 + (79 + 6) = 532
Hence answer is option C

22) Answer: C
Statement I: ab is exactly divisible by 12.
So, the value of ab could be 12, 24, 36, 48, 60, 72, 84 and 96
This statement alone is not sufficient to answer the question.
Statement II: The number is exactly divisible by 25. value of a is not 1.
So the value of b can be 2 or 7

This statement alone is not sufficient to answer the question.

From statement I and II:
Value of ab should be 72.
Value of a = 7 and b = 2
Required value = \(7² / 2 + 8\) = 32.5
Hence answer is option C

23) Answer: C
Let the quantity of milk and water in vessel A and vessel B is 5a, 7a and 8b, 9b respectively.
Statement I: if 28.56% of the mixture from vessel A is removed and mixed with vessel B, then the amount of water in vessel B becomes 271 ml.
7a x 2/7 + 9b = 271
2a + 9b = 271……………. (1)
This statement alone is not sufficient to answer the question
Statement II: The amount of milk in vessel B is 85 ml more than the amount of milk in vessel A.
8b – 5a = 85……………… (2)
This statement alone is not sufficient to answer the question
On combining both statements,
2a + 9b = 271……………. (1)
8b – 5a = 85……………… (2)
On solving both equations
(45b + 16b) = 271 x 5 + 85
61b = 1525
So, the value of b = 25
And the value of a = 23
So quantity of water in vessel A = 7 x 23 = 161 ml

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Both statements are required to answer. Hence answer is option C

24) Answer: C
The length of train X and train Y is ‘2a’ and ‘a’ meters respectively.
Now, (2a + a) = sum of speed of trains x 30
So, a = \(10 \times\) sum of the speed of trains…………….. (1)

Statement I: Train X and Train Y can cross the pole in 45 seconds and 18 seconds respectively
2a = speed of train X x 45………………… (2)
Also, a = speed of train Y x 18…………. (3)
On dividing both equations
\(\frac{2}{1} = \frac{\text{speed of train X x 45}}{\text{speed of train Y x 18}}\)
Speed of train X/ Speed of train Y = 4/5
This statement alone is not sufficient to answer the question

Statement II: Train X can cross the platform of length 2700 meters in 90 seconds.
So, (2a + 2700) = speed of train X x 90…………… (4)
This statement alone is not sufficient to answer the question.

On combining both statements,
From equation 2,
Speed of train X = 2a/45
From equation 4,
\(2a + 2700 = \text{speed of train X x 90}\)………….. (4)
So, (2a + 2700) = 2a/45 x 90
Value of a = 2700/2 = 1350
So length of train Y = 1350 meters

Put in equation 3,
1350 = speed of train Y x 18
Speed of train Y = 1350/18 = 75 m/s
Hence answer is option C

25) Answer: E
Statement I:
Cost price of articles for Rakshit after maintenance be (P + 100) and (Q + 100) respectively.
So, \((P + 100) \times 1.25 + (Q + 100) \times 1.3 = (P + Q + 200) \times \frac{281}{220}\)
275P + 27500 + 286Q + 28600 = 281P + 281Q + 56200
5Q – 6P = 100
This statement alone is not sufficient to answer the question.

Statement II:
By allegation,
\[
\begin{array}{c|c|c}
\text{Percentage} & 10\% & 120\% \\
\hline
\text{Price} & 70\% & 50\% & 60\% \\
\end{array}
\]
\[
\frac{(P + 100)}{(Q + 100)} = \frac{5}{6}
\]
6P + 600 = 5Q + 500
5Q – 6P = 100
This statement alone is not sufficient to answer the question.

26) Answer: B
I. 160, 100
Cost price of article = 160
Marked price of article = 160 + 240 = 400  
Selling price of article = 80% of 400 = 320  
Required profit % = (320 – 160)/160 x 100 = 100%  
This option will satisfy the value.

II. 260, 700/13  
Cost price of article = 260  
Marked price of article = 260 + 240 = 500  
Selling price of article = 80% of 500 = 400  
Required profit % = (400 – 260)/260 x 100 = (700/13) %  
This option will satisfy the value.

III. 100, 162  
Cost price of article = 100  
Marked price of article = 100 + 240 = 340  
Selling price of article = 80% of 340 = 272  
Required profit % = (272 – 100)/100 x 100 = 172%  
This option will not satisfy the value.

IV. 360, 33.33  
Cost price of article = 360  
Marked price of article = 360 + 240 = 600  
Selling price of article = 80% of 600 = 480  
Required profit % = (480 – 360)/360 x 100 = 33.33%  
This option will satisfy the value.

So, I, II and IV will satisfied the given pair  
Hence answer is option B

27) Answer: A  
Let the number of girls in class = a  
So number of boys = (a + 36)

Let the average amount contributed by each girl  
= Rs. b  
So average amount contributed by each boy = 2b  
Average amount contributed by a student = 5/6 x 2b = 5b/3

So, a x b + (a + 36) x 2b = (a + a + 36) x 5b/3  
3a + 6a + 216 = 10a + 180  
So, value of a = 216 – 180 = 36  
Total number of students in class = 36 + (36 + 36) = 108  
Hence answer is option A

28) Answer: C  
Let the number of articles sold by shopkeeper B  
= a  
Number of articles sold by A = 35 + 0.8a  
Number of articles sold by C = 8/5 x (35 + 0.8a)

Now,  
8/5 x (35 + 0.8a) – a = 70  
280 + 6.4a – 5a = 350  
1.4a = 70  
So, value of a = 50  
Number of article sold by C = 8/5 x (35 + 0.8 x 50) = 120  
Total revenue generated by C = 120 x 275 = Rs. 33000  
Hence answer is option C

29) Answer: B  
Let the number of girls in class = a  
So number of boys = (a + 36)

Increment in the height of lemon juice level = 512/64 = 8 cm
New height of lemon juice level = 18 + 8 = 26 cm
Required ratio = 26:18 = 13:9
Hence answer is option B

30) Answer: E
Let the length of train and speed of train be a meters and b km/h respectively.
So, \((a + a) = b \times \frac{5}{18} \times 97.2\)
So, \(2a = 27b\)
So, \(a = \frac{27b}{2}\)…………….. (1)
Also, \(a = (b – 15) \times \frac{5}{18} \times 54\)
Put value of a in equation 1
\(27b/2 = (b – 15) \times \frac{5}{18} \times 54\)
9b = 10b – 150
So, b = 150 km/h
And value of a = \(27/2 \times 150 = 2025\) meters
Required time = \(2025/ (2 \times 15) \times (18/5) = 18.75\) seconds
Hence answer is option E

31) Answer: D
Let speed of stream = a km/h
So, speed of boat in still water = \(440\% \) of a = 4.4a
Upstream speed of boat = \(612/ 12 = 51\) km/h
So, \((4.4a – a) = 51\)
3.4a = 51
So, value of a = 15
Speed of boat in still water = \(15 \times 4.4 = 66\) km/h
Downstream speed of Boat = \(66 + 15 = 81\) km/h
Required difference = \((66 \times 13) – (81 \times 7) = 291\) km
Hence answer is option D

32) Answer: D
Total quantity of mixture is same. So amount of milk in final mixture = \((4a – 220)\) ml
Now,
\(3a \times \left(1 – \frac{80}{4a}\right) \times \left(1 – \frac{100}{4a}\right) = (4a – 220)\)
\(3a \times (a – 20) \times \left(a – 25\right) / (a \times a) = 4a – 220\)
\(3 \times (a^2 - 45a + 500) = 4a^2 - 220a\)
\(3a^2 - 135a + 1500 = 4a^2 - 220a\)
a^2 - 85a – 1500 = 0
(a – 100) (a + 15) = 0
Possible value of a = 100
So amount of milk in mixture initially = \(3 \times 100 = 300\) ml
Hence answer is option D

33) Answer: B
Amount of interest earned by P = \(K \times (1.5^2 - 1) = 1.25K\)
Total money with B after earning compound interest = \(1.25K \times 1.4 \times 1.4 \times 1.4 = 3.43K\)
Money left with B after given to C = \(3.43K – (K + 115800) = (2.43K – 115800)\)
Simple interest received by B = \(20\% \times 4 \times (2.43K – 115800)\)
So, \(20\% \times 4 \times (2.43K – 115800) = 24000\)
\(2.43K = 145800\)
So, value of K = \(145800/2.43 = 60000\)
So, amount given to C = \((60000 + 115800) = 175800\)
Hence answer is option B
34) Answer: B
According to the question,
\[
(7 \times 2D / 70\%) = \left[5 \times (D + 4.8)\right] / 30\%
\]
6D = 5D + 24
D = 24
Time taken by P to complete the work alone=
\[
(2 \times 24 / 70) \times 100 = 68.6 \text{ days}
\]
Time taken by Q to complete the work alone =
\[
(24 + 4.8)/30 \times 100 = 96 \text{ days}
\]
Required difference = 96 – 68.6 = 27.4 days
Hence answer is option B

35) Answer: A
According to the question,
Riya withdraws 37.5% of capital after 5 months,
so she left with 62.5% of capital which is same as 60% of initial capital of Ramesh
So, \[\frac{5}{8} \times \text{Riya initial investment} = \frac{3}{5} \times \text{Ramesh initial Capital}\]
Ratio of Ramesh and Riya’s initial investment = 25:24
So, ratio of profit = \[
(25 \times 4 + 3/4 \times 25 \times 8): (24 \times 5 + 5/8 \times 24 \times 5) = 50:39
\]
So profit share of Ramesh = \[
\left[\frac{50}{50 + 39}\right] \times 58740 = \text{Rs. 33000}
\]
Hence answer is option A