Directions of Test

Test Name	LPU CA 02 - 02 (A)	Total Questions	30	Total Time	50 Mins

Section Name	No. of Questions	Time limit	Marks per Question	Negative Marking
Section 1	6	0:10(h:m)	1	1/4
Section 2	6	0:10(h:m)	1	1/4
Section 3	6	0:10(h:m)	1	1/4
Section 4	6	0:10(h:m)	1	1/4
Section 5	6	0:10(h:m)	1	1/4

Section : Section 1

QNo:- 1 ,Correct Answer:- C

Explanation:- Sum of their ages, 3 years ago = 54 – (3 × 2) = 48 years
Present age of Raman = (5/12 × 48) + 3 = 23 years
Present age of Prabhat = (7/12 × 48) + 3 = 31 years

QNo:- 2 ,Correct Answer:- B

Explanation:- Let the present ages of Ajay and Karan be 'x' and 'y' years respectively.
According to the question:
(x – 4)/(y – 4) = 2/3
3x – 2y = 4 _____ (1)
Also, (x + 8)/(y + 8) = 5/6
6x – 5y = - 8_____(2)
On solving, we get x = 12, y = 16
So, the age of Ajay 6 years later = 12 + 6 = 18 years
Age of Karan 2 years back = 16 – 2 = 14 years
So, the required sum = 18 + 14 = 32 years

QNo:- 3 ,Correct Answer:- A

Explanation:- It is given that Aman : Aakash is 3:4 and Aman : Sahil is 4:5. So, combining the ratio we get
Aman: Aakash: Sahil
12 : 16 : 15
According to the question,
16x – 15x = 3
x = 3
So, the ages of Aman, Aakash and Sahil are 12×3, 16×3, 15×3
Required Sum = 12×3 + 16×3 + 15×3
= (12 + 16 + 15) × 3 = 129

QNo:- 4 ,Correct Answer:- C

Explanation:- *Let the age of Akshay be 'x' years then the age of his son will be '40 – x' years*
4 years ago, the age of Akshay is 'x – 4' and the age of son is 40 – x – 4 = '36 – x' years
According to the question,
x – 4 = 3 (36 – x)
4x = 112
x = 28
Thus, 40 – x = 40 – 28 = 12
Require Product = 28 × 12 = 336

QNo:- 5 ,Correct Answer:- D

Explanation:- *Let son's age = x*
Sachin's age = 4x
After 4 years,
4x + 4 = 3(x + 4)
x = 8
Sachin's age = 4 × 8 = 32 years
His wife's age = 32 × 7/8 = 28 years
Required Average = (28 + 8)/2 = 18

QNo:- 6 ,Correct Answer:- C

Explanation:- *As, there are three persons. So, in 20 years total increase will be 20 × 3 = 60*
So, sum of their age's after 20 years = 28 + 60 = 88
Now, Sahil: Sachin: Shekhar = 2:4:5
Let the ratio be 'x'
2x + 4x + 5x = 88
11x = 88
x = 8
Age of eldest person = 8 x 5 = 40

Section : Section 2

QNo:- 7 ,Correct Answer:- A

Explanation:- *Given $V_{redn} \alpha \sqrt{wagons}$*
⇒$V_{redn} = k\sqrt{wagons}$, where k is constant of proportionality
⇒4 = k × 2
⇒2 = k
If the reduction in speed is 24
⇒24 = 2$\sqrt{wagons}$
⇒wagons = 144
Now we want that the engine must move.
If we remove 1 wagon the engine would just move.
∴ The answer is 143 wagons.

QNo:- 8 ,Correct Answer:- A

Explanation:- Old collection = 4 x 15 = 60
New collection = 7 x 8 = 56
Ratio of collection decreased in 60:56 = 15:14

QNo:- 9 ,Correct Answer:- A

Explanation:- The given ratio at the beginning of the term was 5:4. Let no of boys below and above 15 be 5x and 4x
The given ratio at the end of the term was 7:8. Let no of boys below and above 15 be 7y and 8y
Given 9x=15y
=> 3x = 5y
Also 5x-7y = 20
=> 5*5/3 y - 7y = 20
=> y = 15
=> 7y + 8y = 15y = 15*15 = 225

QNo:- 10 ,Correct Answer:- C

Explanation:-
3 Priya = 4 Preeti = 7 Sonu. To convert this into ratios, simply divide each term by product of other two constants. Priya /28 = Preeti /21 = Sonu /12. So ratio = 28:21:12. Priya = 28/61 ×549 = 252. So option 3.

QNo:- 11 ,Correct Answer:- B

Explanation:- Let the shares of Kartik,Vivek,Sameer after removing 10,20,15 Rs be 11x, 18x and 24x
=> 11x + 18x + 24x = 1105 - (10 + 20+ 15)
=> x = 20
Sameer's share = 20*24 + 15 = Rs.495

QNo:- 12 ,Correct Answer:- B

Explanation:- Let the numbers of marbles with Raju and Lalitha be 4x and 9x respectively. Let us say Lalitha gave y marbles to Raju.

$$\frac{4x+y}{9x-y} = \frac{5}{6}$$

$$y = \frac{21}{11}x$$

Fraction of original marbles that Lata gave to Raju $= \frac{y}{9x}$

$$= \frac{7}{33}$$

Section : Section 3

QNo:- 13 ,Correct Answer:- A

Explanation:- (780000x7) + (70000x 5) : (60000x9) + (135000x3)
5460 + 350   :   540 + 405
5810 : 905
1162: 181

So 69720 and 10860

QNo:- 14 ,Correct Answer:- C

Explanation:-
The ratio in which Kiran and Anil share the profits is equal to the ratio of product of their capital and the time for which their capital was invested
i.e e $40000 \times 8 : 30000 \times 9$
$= 32 : 27$

QNo:- 15 ,Correct Answer:- B

Explanation:- Ratio of time = 3/6 : 1/5 : 5/7 = 35 : 14 : 50

QNo:- 16 ,Correct Answer:- D

Explanation:- Profit share of Reena and Tara = $104000 \times 12 : 78000 \times 4 = 4 : 1$
Let the profit be Rs. X; then, Tara receives 50% as commission for managing business and the remaining 50% of the total profit x is shared between Reena and Tara in the ratio 4 : 1.
Hence, Tara will get $1/5^{th}$ part of this in addition to his commission.
Hence, total earning = $0.50x + 1/5 \times 0.50x = 42000$
$\Rightarrow 0.6x = 42000$
$\Rightarrow x = 70,000$
As the remaining profit goes to Reena, amount received by Reena = 28,000.

QNo:- 17 ,Correct Answer:- C

Explanation:-

If we calculate the investment per month, Raghu invested 12 cows for 6 months, 8 cows for 6 more months and 2 cows for 3 months.

So his overall investment is equivalent to $12 \times 6 + 8 \times 6 + 2 \times 3 = 126$ cows

Same way Rajan's investment = $n \times 9 + (n - 2) \times 3 = 12 n - 6$

The profit was equally distributed, hence the investments must be equal.

Hence, $12n - 6 = 126$ or $n = 11$

QNo:- 18 ,Correct Answer:- A

Ratio of the investments of A, B and C is $\frac{1}{6} \times \frac{1}{6} : \frac{1}{3} \times \frac{1}{3} : \frac{1}{2} \times 1$ or $1 : 4 : 18$

So the share of A is $\frac{1}{23} \times 2300 = Rs\,100.$

Explanation:-

Section : Section 4

QNo:- 19 ,Correct Answer:- C

Explanation:- *Earlier the milk content was xL/100 litres in L litres.*
Let p litres be added to it. Thus, the milk content becomes p + xL/100.
But it is given that it should become y% solution of milk = y(L + p)/100
Thus, p + xL/100 = y(L + p)/100
Solving, we get L (y − x)/ (100 − y)

QNo:- 20 ,Correct Answer:- A

Explanation:-

The effective interest obtained $= \frac{2187.5}{25000} \times 100 = 8.75\%.$

Hence we have by the rule of alligations,

8%   9.5%

8.75%

0.75   0.75

The ratio of the two parts is 1 : 1.
Money lent at 8% is Rs 12500.

QNo:- 21 ,Correct Answer:- C

Explanation:- *Let the liquid B originally in the drum = 3x, so liquid A = 8x*
$\frac{8x-8}{3x-3+11} = \frac{5}{2} \Rightarrow 16x - 16 = 15x + 40 \Rightarrow x = 56 \Rightarrow 3x = 168$ litres

QNo:- 22 ,Correct Answer:- C

Explanation:-

Initial ratio of milk to total volume $\dfrac{M}{T} = \dfrac{3}{5}$

The ratio of milk to total volume when the volume of liquid in the beaker is increased by 60%

$= \dfrac{3}{5(1.6)} = \dfrac{3}{8}$

Next 38.4litres of solution was replaced with water resulting in ratio of milk to water as 3 : 7.

$\therefore$ Ratio of milk to total volume in the beaker $= \dfrac{3}{10}$

When 38.4 litres of solution was removed, volume of milk removed $= \dfrac{3}{8} = 14.4$ litres.

$\therefore$ If the volume of milk before replacement was 3x and total volume was 8x, then $\dfrac{3x - 14.4}{8x} = \dfrac{3}{10} \Rightarrow x = 24$

$\therefore$*Before addition of 60% of water, total volume = 5x = 5 x 24 =120 litres*

QNo:- 23 ,Correct Answer:- A

Explanation:-
Let the solution B contain x% milk. Let a and b be the volumes of A and B (in liters) respectively.

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10%              x%

       12%

 x-12        12-10
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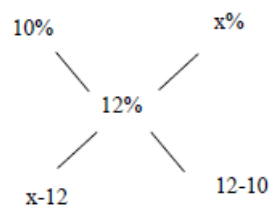
But A : B = 3 : 1

$\Rightarrow \dfrac{x-12}{12-10} = \dfrac{3}{1} \Rightarrow x-12 = 6 \Rightarrow x = 18$

$\dfrac{18B}{100} = 9 \Rightarrow B = 50$ litres $\Rightarrow A = 150$ litres

$\therefore$ *Total volume = 200 litres.*

QNo:- 24 ,Correct Answer:- A

Explanation:-

Required ratio $= \dfrac{\frac{3}{7}+\frac{4}{9}+\frac{5}{11}}{\frac{4}{7}+\frac{5}{9}+\frac{6}{11}} = \dfrac{920}{1159}$. Hence answer is 1st option.

Section : Section 5

QNo:- 25 ,Correct Answer:- D

Explanation:- *Amount of Alcohol in the mixture = 700 / 875 = 4/5
After dilution, the amount of alcohol becomes = 4/5 * 9/10 * 9/10 = 0.648 or 64.8 %
hence the percentage of water = 35.2 %*

QNo:- 26 ,Correct Answer:- C

Explanation:- 5/50 × 100 = 10% removal and replacement,
Firstly, 50 – 5 = 45 litres water remaining, 10% of 45 = 4.5 litres
Again, 45 – 4.5 = 40.5 litres water remaining, rest 9.5 litres must be milk.
Required proportion = Milk : Water = 9.5 : 40.5 = 19:81

QNo:- 27 ,Correct Answer:- C

Explanation:-

The ratio of special liquid to water = 1 : 2.
Thus, total volume will be a multiple of 3. i.e. 12 (option 3).

To verify our answer by taking 12 litres, if 4 litres of liquid is replaced with water, amount of special liquid left is 8 litres.
Now, 6 litres of solution is again replaced by water.
So amount of special liquid and water are 4 & 8 litres respectively i.e. 1 : 2.
Therefore, the capacity of vessel is 12 liters.

QNo:- 28 ,Correct Answer:- C

Explanation:-
Let the quantity sold at 18% gain is x
  1.08(50-x) + 1.18x= 1.14×50
  54 + 0.1x = 57   or   0.1x = 3
   X =30

QNo:- 29 ,Correct Answer:- A

Explanation:-
Let 'a' be the initial quantity of milk and 'b' be the quantity of milk or mixture replaced each time and b = a/4. the volume of mixture left after 2nd (or nth)operation is equal to the initial quantity of milk in the flask as every time, the quantity taken out and replaced is the same.
Thus milk left after third operation:initial milk = $(a-b/a)^n$ =27/64Now, ratio of milk and water = 27 : (64-27) = 27:37

QNo:- 30 ,Correct Answer:- A

Explanation:-
Let 'a' be the initial quantity of milk and 'b' be the quantity of milk or mixture replaced each time and b = a/3. the volume of mixture left after 2nd (or nth)operation is equal to the initial quantity of milk in the flask as every time, the quantity taken out and replaced is the same.
Thus milk left after 6th operation:initial milk = $a*(a-b/a)^n$ =81*64/729
Now, here n = 6 and a = 81. on solving-Milk left after 6th operation = 64/729 * 81 = 7.11 litres .