**Directions of Test**

| Test Name | LPU CA 02 - 04 (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:-*** *D*

***Explanation:-*** *Given, the ratio of Honey: Piyush is 2:3*
*Honey's age = 2x and Piyush's age = 3x*
*One year ago, their ages are 2x and 3x*
*Hence, at present Honey's age = 2x + 1 and Piyush's age = 3x + 1*
*After 5 years, Honey's age = (2x + 1) + 5 = 2x + 6*
*Piyush's age = (3x + 1) + 5 = 3x + 6*
*After 5 years, this ratio becomes 4:5*
*(2x + 6)/(3x + 6) = 4/5*
*On solving, we get x = 3*
*Piyush's present age = 3x + 1 = 10 years*
*Honey's present age = 2x + 1 = 7 years*

***QNo:- 2 ,Correct Answer:-*** *C*

***Explanation:-***
*Ram's present age is 26 yrs as 25 is a perfect square and 27 is a perfect cube.*
*So he should wait for 38 yrs so that after 38 yrs he is of 64 yrs which is a perfect cube.*
*Hence answer is option C*

***QNo:- 3 ,Correct Answer:-*** *B*

***Explanation:-***
*Let the present ages of Sumina and Suhana be 7x and 3x respectively.*
*So, as per the given condition,*
*(7x + 6) : (3x + 6) = 5 : 3,*
*Solving we get x = 2.*
*So, difference of their present ages = (7×2) – (3×2) = 8 years.*

**QNo:- 4 ,Correct Answer:-** D

**Explanation:-** F = 3S + 3 => F - 3S = 3_____(i)
F + 3 = (S + 3)2 + 10 => F - 2S = 13_____(ii)
Solve these two equations and get the father's age as 33 years.

**QNo:- 5 ,Correct Answer:-** B

**Explanation:-** Let the daughter's age be "d" years and the mother's age be "m" years
so we have
2d+3m = 120 ..... (1)
2m+3d = 90 ..... (2)
Solving (1) and (2) we get the value of m as 36 years
Option B

**QNo:- 6 ,Correct Answer:-** B

**Explanation:-** Age of Manick is 12 years.
Age of Rahul is 4 years.
Let after x years, the age of Manick will be twice that of Rahul.
So 12 + x = 2(x + 4)
⇒ x = 4.
Hence the Manick's age at that time will be x + 12 = 16 years.

## Section : Section 2

**QNo:- 7 ,Correct Answer:-** A

**Explanation:-** Let price of Scooter = 9x
Price of Moped = 5x
9x-5x = 4200
$X = \frac{4200}{4} = 1050$
Price of Moped = 5x = 5 × 1050 = 5250

**QNo:- 8 ,Correct Answer:-** B

**Explanation:-** Share of A, B and C are in the ratio of 20, 50 and 30. So, Ratio = 2:5:3
Let their shares be 2x,5x and 3x
Now it is given that 5x = 3000
x= 600
Total is 10x = 10*600 = 6000

**QNo:- 9 ,Correct Answer:-** D

$$x = \frac{6pq}{p+q}$$

$$\frac{x+3p}{x-3p} + \frac{x+3q}{x-3q} = \frac{\frac{6pq}{p+q}+3p}{\frac{6pq}{p+q}-3p} + \frac{\frac{6pq}{p+q}+3q}{\frac{6pq}{p+q}-3q}$$

$$= \frac{6pq+3p^2+3pq}{6pq-3p^2-3pq} + \frac{6pq+3pq+3q^2}{6pq-3pq-3q^2}$$

$$= \frac{9pq+3p^2}{3pq-3p^2} + \frac{9pq+3q^2}{3pq-3q^2}$$

$$= \frac{3p(3q+p)}{3p(q-p)} + \frac{3q(3p+q)}{3q(p-q)}$$

$$= \frac{3q+p}{q-p} - \frac{(3p+q)}{q-p} = \frac{3q+p-3p-q}{q-p}$$

$$= \frac{2q-2p}{q-p} = \frac{2(q-p)}{q-p} = 2$$

**Explanation:-**

**QNo:- 10 ,Correct Answer:-** A

**Explanation:-** *Given Cultural Committee to Debating Committee 200 : 20; and Debating Committee to the Student Welfare Committee spends 400 : 150.*
*Hence, by multiplying by 20 in the first ratio, Cultural Committee to Debating Committee 4000 : 400; and Debating Committee to the Student Welfare Committee spends 400 : 150.*
*Hence, Cultural Committee : Debating Committee : Student Welfare Committee = 4000 : 400: 150 = 80: 8: 3.*

**QNo:- 11 ,Correct Answer:-** D

**Explanation:-** *Among the given options 12, 24 and 36 are numbers which are in ratio 1: 2: 3 and have HCF 12.*

**QNo:- 12 ,Correct Answer:-** D

**Explanation:-** *R : M*
*2 : 3*
*(2X+4000)/(3X+4000)=40/57*
*X = 34000/3*
*Manish's salary=3X= 3×(34000/3)= 34000*
*Manish's salary after increment=34000+4000=Rs.38000*

## Section : Section 3

**QNo:- 13 ,Correct Answer:-** A

**Explanation:-** *Investment of X in second year = 3000 + 3/7 x 2100 =3900*
*Investment of Y in second year =4000*
*Hence ratio of their share the second year's profit = 3900:4000 = 39:40*

***QNo:- 14 ,Correct Answer:-*** *C*

***Explanation:-*** *Since time is same, profit sharing is in the same ratio as investment*

Haider's profit $= \frac{5}{2+3+5} \times 1 \text{ lakh} = \text{Rs } 50{,}000$

***QNo:- 15 ,Correct Answer:-*** *B*

***Explanation:-***

*We know, Total investment = Amount invested x number of months*

*Ratio of profit share for A, B and C = Ratio of their investments*

*According to the question investment is done for 24 months*

Let the initial investment of A, B and C be 2x, 3x and 4x respectively. Then,

$(2x \times 24) : [(3x \times 12) + (3x + 12000) \times 12] : (4x \times 24) = 3 : 5 : 6$

$48x : 72x + 144000 : 96x = 3 : 5 : 6$

$\frac{48x}{72x + 144000} = \frac{3}{5} \quad \Leftrightarrow \quad x = 18000$

Hence B's final investment = 3x + 12000 = Rs 66000

*Option B is the correct answer.*

***QNo:- 16 ,Correct Answer:-*** *B*

***Explanation:-***

Ratio of amount invested = 2:7:9

Ratio of Time Invested = $\frac{1}{2} : \frac{1}{7} : \frac{1}{9}$

Ratio of Effective Investment $= 2 \times \frac{1}{2} : 7 \times \frac{1}{7} : 9 \times \frac{1}{9} = 1:1:1$

All partners get equal profit i.e. ` 360

***QNo:- 17 ,Correct Answer:-*** *B*

***Explanation:-***

Profit Rises for 86% to 90% i.e. 4 % increase in profit

'A' receive $\frac{5}{8}$ i.e. $\frac{5}{8} \times 4 = 2.5\%$ more

New ATQ $2.5\% = 450 \Rightarrow 100\% = 18000$

Capital of B & C each $= 18000 \times \frac{3}{8} \times \frac{1}{2} = 3375$

***QNo:- 18 ,Correct Answer:-*** *A*

***Explanation:-***

*Investment A : 320 for 4 months*
*B : 510 for 3 months*
*C : 270 for 5 months*

*Ratio of Investment A : B : C = (320x4) : (510x3) : (270x5) = 1280 : 1530 : 1350*
*= 128 : 153 : 135*

*Total profit = 208*

*Profit share of A,B,C = 64 : 76.5 : 67.5*

## Section : Section 4

**QNo:- 19 ,Correct Answer:-** B

**Explanation:-** Total solution = 120 lt
Acid = 75% of 120 lt = 90 lt and Water = 120 – 90 = 30 lt
20 lt is taken out, that will be in the same ratio as it is present originally,
⇒ Acid removed = 75% of 20 lt = 15 lt and Water removed = 20 – 15 = 5 lt
Now, Acid added = 16.2 lt and Water added = 3.8 lt
⇒ Final Acid in the solution = 90 – 15 + 16.2 = 91.2 lt
⇒ Final water in the solution = 30 – 5 + 3.8 = 28.8 lt
Required Percentage = 28.8/120 × 100 = 24%

**QNo:- 20 ,Correct Answer:-** C

**Explanation:-** In 1 kg of fibre, we have 780 gms of terilene and 220 gms of cotton.
The cost of 780 gms of terilene = 80 × 0.78 = Rs. 62.4
The cost of 220 gms of cotton = 150 × 0.22 = Rs. 33
The total cost of 2.15 m of Tericot = 62.4 + 33 + 76.6 = 172
Cost/m of Tericot = 172/2.15 = Rs. 80

**QNo:- 21 ,Correct Answer:-** A

**Explanation:-** $\text{Required ratio} = \frac{3}{5}+\frac{7}{10}+\frac{11}{15}:\frac{2}{5}+\frac{3}{10}+\frac{4}{15}=61:29$

**QNo:- 22 ,Correct Answer:-** B

**Explanation:-** For every Rs. 2 increase he sells 240 litres more
So for 1 Re increase he would sell 120 litres more = 1220 + 120 = 1340

**QNo:- 23 ,Correct Answer:-** C

**Explanation:-** Let milk = 14x , water = 3x
Water withdraw = 25.5 × 3 / 17 = 4.5
Milk = 25.5 – 4.5 = 21
Now water content = 3x – 4.5 + 2.5 = 3x -2
Milk content = 14x - 21 + 5 = 14x – 16
ATQ.
3x-2/17x-18 = 1/5
⇒ x = 4
Total mixture = 14 x + 3x = 17x = 17 ×4 =68

**QNo:- 24 ,Correct Answer:-** B

**Explanation:-**
Petrol = 2×1/2 + 3×3/5 + 1×4/5 = 36/10 = 3.6
Kerosene = 6 – 3.6 = 2.4
Ratio = 3.6/2.4 = 3:2

## Section : Section 5

**QNo:- 25 ,Correct Answer:-** A

**Explanation:-**

$$\text{Fineness of the compound} = \frac{6\times15+5\times14+4\times12\frac{1}{2}}{6+5+4}\text{carats} = \frac{210}{15}\text{or } 14\text{ carats.}$$

**QNo:- 26 ,Correct Answer:-** B

**Explanation:-**

Using dilution of mixture, we have

$$\text{Milk remained} = 40\times\left(1-\frac{4}{40}\right)^3 = 29.16 litre.$$

**QNo:- 27 ,Correct Answer:-** B

**Explanation:-**

*The final ratio of glycerine to the total quantity is-*

$$\frac{\text{G}}{\text{Total quantity}} = \left(1-\frac{1}{3}\right)^2 = \frac{4}{9}$$

*Thus the ratio of water to glycerine in the final mixture will be 5 : 4.*

**QNo:- 28 ,Correct Answer:-** A

**Explanation:-**

*8 litres of wine is replaced with water = hence 8/64 th of the wine is replaced every time = 1/8 th of the solution.*

The required proportion

$$= \frac{\left(1-\frac{1}{8}\right)^3}{1-\left(1-\frac{1}{8}\right)^3} = \frac{\frac{343}{512}}{1-\frac{343}{512}} = 343:169.$$

*Hence the answer is option A*

**QNo:- 29 ,Correct Answer:-** C

**Explanation:-** *The total quantity of the milk that he consumed is 1l or 1000 ml.*
*The total quantity of water consumed = total mixture consumed – total milk consumed*
*= [4% of 1000 + 8% of 1000 + 12% of 1000 + ---- + 96% of 1000 + 100% of 1000] – 1000*

$$= \left(\frac{4+8+12+---+96}{100}\right)\times1000+1000-1000$$

$$= \frac{24}{2}(4+96)\times\frac{1}{100}\times1000 = 12\times1000$$

*∴ The required ratio is 1000 : 12 × 1000 or 1 : 12*

***QNo:- 30 ,Correct Answer:-*** *A*

***Explanation:-*** *Total milk = 50 L*
*Volume of Mixture / Milk replaced each time = 5 L*

As this process is repeated 4 times, so the milk remained $= 50\left(1-\frac{5}{50}\right)^4$

$$= 50\times\left(\frac{9}{10}\right)^4 = \frac{50\times9\times9\times9\times9}{10\times10\times10\times10} = 32.8 \text{ litre}$$