

**Directions of Test**

<b>Test Name</b>	LPU CA PEA 305 - 04	<b>Total Questions</b>	30	<b>Total Time</b>	40 Mins
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Section Name	No. of Questions	Marks per Question	Negative Marking
Paper 1	15	1	1/4
Paper 2	15	1	1/4

**Section : Paper 1**

**QNo:- 1 ,Correct Answer:- B**

**Explanation:-**

$$10^{25} - 7 = (10^{25} - 1) - 6$$

The number  $10^{25} - 1 = 99.....9$  (25 digits) is divisible by 3 and 9.

Therefore,  $(10^{25} - 1) - 6 = (24 \text{ nines and unit digit is } 3) = 99.....93$ .

This number is only divisible by 3 (from the given choices).

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

**Explanation:-**

Let the numbers be  $x$  and  $y$

$$\text{Therefore, } x \times y = 120 \times 10 = 1200$$

We also know that  $40 \times 30 = 1200$ , whose HCF is 10 and LCM is 120

Therefore  $x + y = 40 + 30 = 70$  can be the sum of those two numbers

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

**Explanation:-** For  $n = 5$  and  $n=7$  the no. of positive divisors are 2 i.e. (1,5) and (1,7) resp. Hence I is true.

For  $n = 35$  the no. of positive divisors are 4 i.e. (1,5,7, 35), hence II is also true.

For  $n = 12$  the no. of divisors are 6 i.e. (1,2,3,4,6,12), which is not equal to 4, hence III is not true.

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

**Explanation:-**

Number of 2's in  $26!$  is  $13+6+3+1=23$ . So number of 8's is  $1/3$  of 23 i.e 7.

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

**Explanation:-**

If we divide 15 by 14, we will get remainder 1. Thus, any power of 15 when divided by 14 will always give remainder 1.

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

**Explanation:-**

Take it as  $(3)^{99}$  because we have to see only the unit's place digit

Now,  $(3)^{99}$

$= (3^4)^{24} \cdot 3^3$

$= 1.7$

$= 7$

So Ans. is option 1

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

**Explanation:-**

Let the original number of employees =  $x$ .

Now  $40x + 120 \times 32 = (x + 120) \times 36$ . On solving we get  $x = 120$ .

So the total employees =  $120 + 120 = 240$ .

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

**Explanation:-** Avg of three = 3600

This means that total income of all three =  $3600 \times 3 = 10,800$

Let the income of other two =  $5x$ . So income of first =  $x$ .

Now  $6x = 10,800$  which means  $x = 1800$ .

So option B.

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

**Explanation:-**

Let there be ' $x$ ' papers

A.T.Q  $63x + 20 + 2 = 65x$

$\Rightarrow x = 11$

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

**Explanation:-** Average of 20 numbers = 0.

Sum of 20 numbers  $(0 \times 20) = 0$ .

It is quite possible that 19 of these numbers may be positive and if their sum is  $a$  then 20th number is  $(-a)$ .

**QNo:- 11 ,Correct Answer:- B****Explanation:-**

Total age of two men replaced =  $20 + 22 = 42$  years

Total increase in age on replacement =  $2 \times 12 = 24$  years

Total age of two new persons included =  $42 + 24 = 66$  years

Therefore, Average age of new persons =  $66/2 = 33$  year

**QNo:- 12 ,Correct Answer:- C****Explanation:-**

Let the first installments is  $a$  ; Installments are in AP. let the Common difference is  $d$

So, Installments are

$a, a+d, a+2d, \dots, 40^{\text{th}}$  term

$40^{\text{th}}$  term =  $a + (40-1)d = a + 39d$

Sum of 40 terms =  $n/2 (a+L)$

=  $(40/2)[a+a+39d]$

=  $20[2a + 39d]$

It is given total debt is 3600 ; So,  $20[2a + 39d] = 3600$

$2a + 39d = 180 \dots\dots\dots(1)$

When 30 installments are paid ,Total payment till 30 installments

=  $3600 - (1/3) \times 3600 = 3600 - 1200 = 2400$

Sum of 30 terms =  $n/2 [a+L]$

=  $30/2 [a+a+29d]$

=  $15(2a + 29d)$

$15(2a+29d) = 2400$  ;  $2a + 29d = 160 \dots\dots\dots(2)$

Taking equation (1) and (2)

$2a + 39d = 180$

$2a + 29d = 160$

$(-) \quad (-) \quad (-)$

$10d = 20$  ;  $d = 20/10$  ;  $d = 2$

Put the value of  $d$  in (2) We get, ;  $2a + 29 \times 2 = 160$  ;  $2a + 58 = 160$  ;  $2a = 160 - 58$  ;  $2a = 102$  ;  $a = 102/2 = 51$

$8^{\text{th}}$  installment is  $a + (8-1)d$  ;  $a + 7d = 51 + 7 \times 2$  ;  $51 + 14 = 65$

Hence the answer is option 3

**QNo:- 13 ,Correct Answer:- C****Explanation:-**

Clearly, the series is of natural numbers 1, 2, 3, 4, ... . Reqd ratio = 1 : 4.

**QNo:- 14 ,Correct Answer:- B****Explanation:-**

The series is in A.P. where  $a = -12$  and  $d = 4$ .

So  $120 = (n/2)[2 \times (-12) + (n-1) \times 4]$ .

On solving this, we get  $n = 12$

So option B.

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

**Explanation:-**

Clearly, it's a question of A.P. where  $n = 12$   $S_n = 330000$   $d = 1500$ . Let  $a$  be the savings of January's month

$$S_n = n/2(2a + (n-1)d) = 6(2a + 11 \cdot 1500) = 330000$$

$$a = \text{Rs } 19250$$

### Section : Paper 2

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

**Explanation:-** Number of literate man =  $166000 \times 0.7 = 116200$

Number of total literate =  $296000 \times 0.5 = 148000$

Number of literate women =  $148000 - 116200 = 31800$

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

**Explanation:-** Since, 60% workers are males, then 40% workers are females.

Now 40% of total = 800

$$\therefore 60\% \text{ of total} = 800/40 \times 60 = 1200$$

Hence option 1

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

**Explanation:-** Let the total number of flowers in the basket = 100

	Rose flowers	Lily flowers	Total
Red	48	30 (75% of 40)	78
Yellow	12 (20% of 60)	10	22
Total	60	40	100

$$\text{Required Percentage} = \frac{12}{22} \times 100 = 54.54\%$$

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

**Explanation:-**

we can solve it by using options

Let  $x$  be the initial cost of the flight ticket,

Option 1- if she booked 10 days prior, then gets 25% off

$$x - 25\% \text{ of } x = 4680 \Rightarrow x = 6240$$

and if she booked 9 days prior. Then gets 15% off

$$x - 15\% \text{ of } x = 5400 \Rightarrow x = 6353 \text{ (approx)}$$

Incorrect

Option 2- if she booked 20 days prior, still gets 35% off

$$x - 35\% \text{ of } x = 4680 \Rightarrow x = 7200$$

and if she booked 19 days prior. Then gets 25% off

$$x - 25\% \text{ of } x = 5400 \Rightarrow x = 7200$$

Correct

No need to check further.

So, she would have booked the ticket 19 days prior

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

**Explanation:-** Let the income of Bimala is Rs. 100. So income of Amala is Rs. 120 and that of Kamala is Rs. 150. In second case, the income of Bimala becomes Rs. 110 and that of Kamala, it becomes Rs. 144.

$$\text{Required \%age} = \frac{144 - 110}{110} \times 100 = \frac{34}{110} \times 100 = 30.9 \approx 31\%$$

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

**Explanation:-** Let cost price = 100

Selling price = 115

$$\text{New CP} = 100 - 5 = 95$$

$$\text{New SP} = 95 + 9.5 = 104.5$$

$$\text{Difference in SP} = 115 - 104.5 = 10.5$$

If difference is 10.5 then C.P. = 100

$$\text{If difference is 21 then C.P.} = \frac{100}{10.5} \times 21 = 200$$

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

**Explanation:-**

Let the marked price be Rs.  $x$ .

$$\text{Then, cost price is } \frac{1}{1.2}x = \text{Rs. } \frac{5}{6}x$$

$$\text{And the selling price is } \frac{90}{100}x = \text{Rs. } \frac{9}{10}x$$

$\therefore$  Profit percentage

$$= \frac{\text{S.P.} - \text{C.P.}}{\text{C.P.}} \times 100 = \frac{\frac{9}{10}x - \frac{5}{6}x}{\frac{5}{6}x} \times 100 = 8\%$$

Alternate Solution:

$$20 - 10 - \frac{20 \times 10}{100} = 8\%$$

**QNo:- 23 ,Correct Answer:- A****Explanation:-**

Cost price for Cintu will be  $1188/1.1=1080$

Cost price for Bittu will be  $1080/.9=1200$

Cost Price for Aadi will be  $1200/1.2=1000$

This 1000 includes the price for repairs

So  $1000-110=890$

**QNo:- 24 ,Correct Answer:- D****Explanation:-**

In case of successive discounts, in the discount option, in which the difference between the discounts is maximum, the net discount will be maximum (provided their sum is same). e.g. Let the successive discount option are 40% + 30% and 60% + 10%. The sum in both the cases is same but in the first case, the net discount is 58% whereas in second case the net discount is 64%. Based on this concept we can say that the discount will be maximum if  $x = k$  and  $y = 0$  or  $y = k$  and  $x = 0$ .

**QNo:- 25 ,Correct Answer:- C****Explanation:-**

We have the formula as

Single discount =  $1 - (1 - p_1)(1 - p_2)(1 - p_3)....$

where  $p_1, p_2, p_3$  are successive discounts

Therefore, single discount =  $1 - (1 - 0.10)(1 - 0.20) = 1 - 0.72 = 0.28$  or 28%

**QNo:- 26 ,Correct Answer:- D****Explanation:-**

Since the simple interest for three years is \$ 7200, so the simple interest for one year is \$ 2400. In the first year the simple interest and the compound interest are same. So compound interest for the first year is \$ 2400. Hence compound interest for the second year is \$ 5520 - \$ 2400 = \$ 3120. This means that in the second year \$ 3120 - \$

2400 = \$ 720 is the interest on \$2400 in one year. Hence rate of interest =  $\frac{720}{2400} \times 100 = 30\%$ .

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

Let the principal be P.

Difference in amounts in 8 and 5 years =  $12005 - 9800 = 2205$ ;

Interest earned per year =  $2205 / 3 = 735.....(i)$

Now, Interest earned in 5 years =  $5 \times 735 = 3675$ .

$P = 9800 - 3675 = 6125.....(ii)$

From (i) and (ii), we get;

Rate =  $(735 / 6125) \times 100 = 12\%$

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

**Explanation:-**

$$A = P \left( 1 + \frac{R}{100} \right)^T$$

$$\Rightarrow \frac{A}{P} = \left( 1 + \frac{R}{100} \right)^T$$

$$\Rightarrow 2 = \left( 1 + \frac{R}{100} \right)^5 \Rightarrow 2^4 = \left( 1 + \frac{R}{100} \right)^{20} \Rightarrow 16 = \left( 1 + \frac{R}{100} \right)^{20}$$

Hence, the principal will become 16 times i.e. Rs.  $(16 \times 12000) = \text{Rs. } 192000$

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

**Explanation:-**

$$\text{The Amount} = P \left( 1 + \frac{R}{100} \right)^t$$

$$\text{Hence in this case the amount will be} = 100 \left( 1 + \frac{6}{100} \right)^5 = 100(1 + 0.06)^5.$$

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

**Explanation:-**  $P = 8000$ ,  $R = 12/4 = 3\%$  per quarter and  $T = 5$  quarters

$$A = P (1 + R/100)^T = 8000 (1 + 3/100)^5 = 9274.20$$

Alternatively,

$$\text{Amount (approximately)} = 8000 + (5 \times 240) + (10 \times 7.2) + (10 \times 0.216) + \dots \approx 9274$$