Directions of Test

Test Name	LPU CA PEA 305 - 03 (A)	Total Questions	30	Total Time	40 Mins

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:- *C*

Explanation:-
6 is an even multiple of 3. When any even multiple of 3 is divided by 6, it will leave a remainder of 0. Or in other words it is perfectly divisible by 6.
On the contrary, when any odd multiple of 3 is divided by 6, it will leave a remainder of 3. For e.g when 9 an odd multiple of 3 is divided by 6, you will get a remainder of 3.
9 is an odd multiple of 3. And all powers of 9 are odd multiples of 3.
Therefore, when each of the 8 powers of 9 listed above are divided by 6, each of them will leave a remainder of 3.
The total value of the remainder = 3 + 3 +.... + 3 (8 remainders) = 24.
24 is divisible by 6. Hence, it will leave no remainder.
Hence, the final remainder when the expression $9^1 + 9^2 + 9^3 +.... + 9^8$ is divided by 6 will be equal to '0'.

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

Explanation:-
$m - n = 2p$

$m + n = 2q$

$\therefore (m - n)(m + n) = 4p*q$

$\Rightarrow m^2 - n^2 = 4p*q$

Hence it should be divisible by 4 i.e option A

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

Explanation:-
From 5! onwards, each value will end in 0. So, the last digit of the sum is the same as the last digit of 1! + 2! + 3! + 4! = 1 + 2 + 6 + 24 = 33. Thus the last digit of 1! + 2! + 3! + ... + 100! is 3.

QNo:- 4 ,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:- 5 ,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:- 6 ,Correct Answer:- *D*

Explanation:-
Let the numbers be x and y
Therefore, x × y = 120× 10 = 1200
We also know that 40× 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:- 7 ,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 .....40^{th} term
40^{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 .....(1)

When 30 installments are paid ,Total payment till 30 installments
*= 3600- (1/3)*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 .....(2)
Taking equation (1) and (2)
2a + 39d = 180
2a +29d = 160
(-) (-) (-)
10d = 20 ; d = 20/10 ; d = 2
*Put the value of d in (2) We get, ; 2a + 29*2 = 160 ; 2a + 58 = 160 ; 2a = 160 – 58 ; 2a = 102 ; a = 102/2 = 51*
*8^{th} installment is a + (8-1)d ; a + 7d = 51 + 7*2 ; 51 + 14 = 65*
Hence the answer is option 3

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

Explanation:-
$a = m^{1/3}$ and $ar^2 = m^{1/2} \Rightarrow r = m^{1/12}$. So, the 13^{th} term is $ar^{12} = m^{4/3}$.

QNo:- 9 ,Correct Answer:- C

Explanation:-
$S_2 = 2 \times 10 = 20$, $S_3 = 3 \times 11 = 33$, $S_4 = 4 \times 12 = 48$, $S_5 = 5 \times 13 = 65$.
Now, $S_3 - S_2 = T_3 = 33 - 20 = 13$, $S_4 - S_3 = T_4 = 48 - 33 = 15$ and $S_5 - S_4 = T_4 = 65 - 48 = 17$. Comparing terms, it is easy to see that the common difference is 2. Hence option 3.

QNo:- 10 ,Correct Answer:- B

Explanation:-
Suppose the 6 numbers in AP are a, (a + d), (a + 2d), (a + 3d), (a + 4d) and (a + 5d). From the given information, a = 4(a + 2d), which yields 3a + 8d = 0. The sum of the 6 numbers is 3(2a + 5d) = 3 ⇒ 6a + 15d = 3. Solving these simultaneously, we get a = 8 and d = –3. So the six numbers are 8, 5, 2, –1, –4, –7. Thus the fifth term is –4.

QNo:- 11 ,Correct Answer:- C

Explanation:-
Average age of class = Total sum of ages of all the students/ number of students
⇒ Total sum = Average age × number of students = 12 × 30 = 360 yrs

QNo:- 12 ,Correct Answer:- B

Explanation:- Avg of three = 3600

This means that total income of all three = 3600*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:- 13 ,Correct Answer:- D

Explanation:- Total runs up to 10 innings = 10 × 32 = 320. Let he makes x runs in the next inning.
So we have 320 + x = 11 × 36
⇒ 320 + x = 396
⇒ x = 76.

So option D.

QNo:- 14 ,Correct Answer:- D

Explanation:- Average of 20 numbers = 0.
Sum of 20 numbers (0 x 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:- 15 ,Correct Answer:- *B*

Explanation:- *Average weight of 18 students in 15kg*

So the total weight of 18 students = 18 × 15 = 270
One student left the class then average will be 17 kg
The total weight of 17 students = 17 ×14 = 238
Weight of student who left the class = 270 - 238 = 32

Section : Paper 2

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

Explanation:- *Let the orignal cost of idea cellular and reliance jio be A and B respectively*
(7/8 × A) / (11/12×B) = 7/11
A/B = (7/11) × (11/12) × (8/7) = 2/3

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

Explanation:- *Price after 1st discount = 180 – 10% of 180 = 162;*
So other discount = $\frac{137.70 - 162}{162} \times 100 = 15\%$

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

Explanation:- *Since the new salary becomes 15/8 times of the initial salary , thus there is a net increase of 7/8 or 87.5%, which is possible only in 3rd option.*

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

Explanation:-

Let Price/gallon = x, and he buys y gallons.

Therefore xy = 1800,

*Now 0.9x * (y+5) = 1800*

.9xy + 4.5x = 1800.

*.9*1800 + 4.5x = 1800*

1620 + 4.5x = 1800

4.5x = 180

x = 40.

QNo:- 20 ,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:- 21 ,Correct Answer:- *A*

Explanation:- *Let number of males be x and females be (5500 – x)*
Net increase in population 6330-5500=830
.11x + .20(5500 – x)=830
On solving x=3000
Females will be 5500-3000=2500

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

Explanation:- *The premium = 35 × 200000 / 1000 = 7000*
So the commission = 15 × 7000/ 100= 1050

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

Explanation:- *120 % of the cost price = 2400, hence Cost Price of the table = 2000*
The profit in the first case = 400 while in the second case profit = 600.
Therefore he makes Rs. 200 extra profit, which is 33.33 % of the profit made in the second case.

QNo:- 24 ,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:- 25 ,Correct Answer:- *C*

Explanation:- *Let cost price be x and y*
.85x=1.19y
x/y=7/5
Cost price of lower mobile will be 480×5/12=200

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

Explanation:- *From the given options, only Principal =Rs. 1400 & Rate= 10% gives Rs. 1694 Amount after 2 years at compound interest.*

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

Explanation:- *Compound interest for 3rd year =3456-2880 = 576Rs,*
This was the interest on amount of Rs.2880 outstanding at the end of 2 years.

$$\text{Hence the rate of interest} = \frac{576}{2880} \times 100 = 20\%$$

Let principle=x Rs.
Amt. after 2 years=2880

$$\Rightarrow x\left(1+\frac{20}{100}\right)^2 = 2880$$

$$\Rightarrow x = 2000$$

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 × 12000) = Rs. 192000

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

Explanation:-
Let Principal = Rs.100, S.I = Rs.100, Time = 16 yrs. S.I in 32 years = Rs. 200, And so the money will treble itself in 32 years.

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

Explanation:-

$$\text{Rate of interest in 1st case} = \frac{100(3-1)}{4} = 50$$

$$\text{Rate of interest in 2nd case} = \frac{100(2-1)}{5} = 20$$

So better rate of interest is 50%.