

2007 MBA - MATHEMATICS QUESTION PAPER

(LCM,HCF)

TIME – 3HOUR

MARK – 100

Question 1 of 25

M and N are two distinct natural numbers. HCF and LCM of M and N are K and L respectively. A is also a natural number, which of the following relations is not possible?

1.  $K \cdot L = A$
2.  $K \cdot A = L$
3.  $L \cdot A = K$
4. None of these

Mark for revision | Unmark

Question 2 of 25

The square of the HCF, of  $(349)_6$  and  $(729)_6$  in the base 10 is:

1. 16
2. 729
3. 9
4. 49

Mark for revision | Unmark

Question 3 of 25

What least number must be subtracted from 1294 so that the remainder when divided by 9, 11, 13 will leave in each case the same remainder 6?

1. 5
2. 1
3. 7
4. 3

Mark for revision | Unmark

Question 4 of 25

An electric wire is sold only in multiples of 1 metre, and a customer required several lengths of wire, each 85 cm long. To avoid any wastage and to minimise labour, he should purchase minimum lengths of

1. 8.5 metres
2. 17 metres
3. 85 metres
4. 1.7 metres

Mark for revision | Unmark

Question 5 of 25

The LCM of  $(231)_7$  and  $(539)_6$  in the base 10 is:

1. 8180
2. 8280
3. 8260
4. None of these

Mark for revision | Unmark

Question 6 of 25

There are 4 numbers. The H.C.F. of each pair is 3 and the L.C.M. of all the 4 numbers is 126. What is the product of 4 numbers?

1. 10206
2. 3402
3. 3996
4. None of these

Mark for revision | Unmark

Question 7 of 25

Find G.C.D. of  $288! + 1$  and  $(289)!$

1. 17
2. 57
3. 288
4. 1

Mark for revision | Unmark

Question 8 of 25

Mr. Hero and Mr. Zero were racing on a circular track. Mr. Hero was 2.5 times faster than Mr. Zero. If Mr. Hero takes 20 second to complete one full circle, find the time when they would meet simultaneously at the starting point if both of them started simultaneously?

1. 1000 secs
2. 100 secs
3. 50 secs
4. Cannot be determined

Mark for revision | Unmark

Question 9 of 25

LCM of two numbers  $x$  and  $y$  is 161. Find out the value of  $(4x - 3y)$ , given that  $y > x > 1$ .

1. - 25
2. - 16

3. – 41
4. cannot be determined

Mark for revision | Unmark

Question 10 of 25

The HCF and LCM of two numbers is known. To find the two numbers, which of the following is/are sufficient?

- I. Product of two numbers
- II. Sum of two numbers.
- III. Difference of two numbers.

1. I only
2. II only
3. II or III only
4. I, II and III

Mark for revision | Unmark

Question 11 of 25

The least number which when divided by 48, 60, 72, 108 and 140 leaves 38, 50, 62, 98 and 130 as remainders respectively is

1. 11115
2. 15110
3. 15120
4. 15210

Mark for revision | Unmark

Question 12 of 25

The product of two numbers is 12960 and their H.C.F. is 36. How many pairs of such numbers can be found?

1. 3
2. 4
3. 6
4. 2

Mark for revision | Unmark

Question 13 of 25

Find the least number which when divided by 8, 12 and 16 leaves 3 as remainder in each case, but when divided by 7 leaves no remainder.

1. 147
2. 35
3. 51
4. 39

Mark for revision | Unmark

Question 14 of 25

Three men start together to walk along a road at the same rate. The lengths of their strides are 68 cm, 51 cm and 85 cm respectively. How far will they go before they will be "IN STEP" again?

1. 102 m
2. 1020 m
3. 150 m
4. 10.2 m

Mark for revision | Unmark

Question 15 of 25

Let  $k$  be the smallest positive integer with the property that for all  $n$  such that  $2 \leq n \leq 10$ , when divided by  $n$  it leaves a remainder of  $n - 1$ . Find the sum of the digit of  $k$ .

1. 12
2. 13
3. 15
4. 17

Mark for revision | Unmark

Question 16 of 25

The smallest positive number which leaves a remainder of 1 when it is divided by 3, 4, 5 or 7 is

1. 85
2. 106
3. 141
4. 421

Mark for revision | Unmark

Question 17 of 25

How many ordered triples  $(a, b, c)$  are there, such that  $\text{LCM}(a, b) = 1000$ ,  $\text{LCM}(b, c) = 2000$ ,  $\text{LCM}(c, a) = 2000$ ?

1. 45
2. 75
3. 85
4. 50

Mark for revision | Unmark

Question 18 of 25

A person had a number of toys to distribute among children. At first he tried giving 2 toys to each child, then 3 toys to each, then 4 to each, then 5 to each, then 6 to each, but was always left with one. On trying 7 he had no toys left with him. What is the smallest number of toys that he could have had?

1. 49
2. 301
3. 105
4. 77

Mark for revision | Unmark

Question 19 of 25

What is the least number which must be subtracted from 2024 so that the resultant when divided by 7, 10, 15 will leave in each case the same remainder 3?

1. 213
2. 131
3. 210
4. 224

Mark for revision | Unmark

Question 20 of 25

Find the gcd of (111...11 hundred ones) and (11...11 sixty ones).

1. 111...forty ones
2. 111...twenty five ones
3. 111...twenty ones
4. None of these

Mark for revision | Unmark

Question 21 of 25

For two positive integers  $a$  and  $b$ , define the function  $h(a, b)$  as the greatest common factor (G.C.F.) of  $a, b$ . Let  $A$  be a set of  $n$  positive integers. Let  $G$  be the G.C.F. of the elements of set  $A$  which is computed repeatedly using the function  $h$ . The minimum number of times function  $h$  is used to compute  $G$  is

1.  $\frac{1}{2}n$
2.  $(n - 1)$
3.  $n$
4. None of these

Mark for revision | Unmark

Question 22 of 25

HCF of two numbers is 15 and their LCM is 180. If their sum is 105, then find the numbers.

1. 30 and 75
2. 35 and 70
3. 40 and 65
4. 45 and 60

Mark for revision | Unmark

Question 23 of 25

Find two natural numbers such that their LCM is 48 and the difference between the two numbers is 4.

1. 8,12
2. 16,24
3. 20,24
4. None of these

Mark for revision | Unmark

Question 24 of 25

Central jail has two check posts with rotating spotlights. These two posts are 500 m apart and 100 m tall each. One spotlight rotates anticlockwise and other clockwise with a speed of 300 per minute and 450 per minute. Also flashes after interval of 2 minutes and 7 minutes respectively. At 12'o clock both are focusing at the mid point joining the bases of post. When does this happen for the second time?

1. 2 : 48
2. 1 : 36
3. 3 : 20
4. 3 : 30

Mark for revision | Unmark

Question 25 of 25

A man who got into a hurry, asked the driver what his registration number was. The driver, being a maths enthusiast said, 'If you divide my registration number by 2, 3, 4, 5 or 6 you will find that the remainder is always 1. But if you divide it by 11 then there will not be any remainder : What is more, there is no other driver with a smaller number who can say the same.' Help the perplexed passenger calculate the correct registration number of the taxi.

1. 0121
2. 1210
3. 1021
4. 1201