GOUR INSTITUTE

PSC , Bank(Clerk/PO), SSC, Railways, S.I. , Classes
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F – 12, City Bazar,Thatipur, Gwalior (M.P.)www.gourinstitute.**in**

L.C.M. – H.C.F

INTRODUCTION

1. **Factors and Multiples:**
   If number *a* divided another number *b* exactly, we say that *a* is a **factor** of *b*.
   In this case, *b* is called a **multiple** of *a*.

2. **Highest Common Factor (H.C.F.) or Greatest Common Measure (G.C.M.) or Greatest Common Divisor (G.C.D.):**
   The H.C.F. of two or more than two numbers is the greatest number that divides each of them exactly.

   There are two methods of finding the H.C.F. of a given set of numbers:
   I.   **Factorization Method:** Express the each one of the given numbers as the product of prime factors. The product of least powers of common prime factors gives H.C.F.
   II. **Division Method:** Suppose we have to find the H.C.F. of two given numbers, divide the larger by the smaller one. Now, divide the divisor by the remainder. Repeat the process of dividing the preceding number by the remainder last obtained till zero is obtained as remainder. The last divisor is required H.C.F.
   Finding the H.C.F. of more than two numbers: Suppose we have to find the H.C.F. of three numbers, then, H.C.F. of [(H.C.F. of any two) and (the third number)] gives the H.C.F. of three given number.
   Similarly, the H.C.F. of more than three numbers may be obtained.

3. **Least Common Multiple (L.C.M.):**
   The least number which is exactly divisible by each one of the given numbers is called their L.C.M.
   There are two methods of finding the L.C.M. of a given set of numbers:

   I.   **Factorization Method:** Resolve each one of the given numbers into a product of prime factors. Then, L.C.M. is the product of highest powers of all the factors.
   II. **Division Method (short-cut):** Arrange the given numbers in a rwo in any order. Divide by a number which divided exactly at least two of the given numbers and

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carry forward the numbers which are not divisible. Repeat the above process till no two of the numbers are divisible by the same number except 1. The product of the divisors and the undivided numbers is the required L.C.M. of the given numbers.

4. **Product of two numbers = Product of their H.C.F. and L.C.M.**
5. **Co-primes:** Two numbers are said to be co-primes if their H.C.F. is 1.
6. **H.C.F. and L.C.M. of Fractions:**

$$1.\ \text{H.C.F.} = \frac{\text{H.C.F. of Numerators}}{\text{L.C.M. of Denominators}}$$

$$2.\ \text{L.C.M.} = \frac{\text{L.C.M. of Numerators}}{\text{H.C.F. of Denominators}}$$

8. **H.C.F. and L.C.M. of Decimal Fractions:**
In a given numbers, make the same number of decimal places by annexing zeros in some numbers, if necessary. Considering these numbers without decimal point, find H.C.F. or L.C.M. as the case may be. Now, in the result, mark off as many decimal places as are there in each of the given numbers.

9. **Comparison of Fractions:**
Find the L.C.M. of the denominators of the given fractions. Convert each of the fractions into an equivalent fraction with L.C.M as the denominator, by multiplying both the numerator and denominator by the same number. The resultant fraction with the greatest numerator is the greatest.

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EXERCISE

01 An Electronic Device ring up after 60 second and second ring up after 62 second and they both ring up together at 1:00 'o'clock morning so how many clock they both ring up again together ?
(a) 10:31 AM   (b) 10:32 AM   (c) 10:33 AM   (d) 10:35 AM   (e) None of these

02 Find out which maximum number divided by 69 & 12 & reminder should be 3 ?
(a) 985   (b) 831   (c) 765   (d) 1000   (e) None of these

03 Find out which minimum number divisible by 10, 12, 15 & 18 will be square ?
(a) 360   (b) 500   (c) 900   (d) 1800   (e) None of these

04 Find out which minimum number divisible by 4, 6 & 8 that also square ?
(a) 900   (b) 400   (c) 3600   (d) 1800   (e) None of these

05 Find out the number if ratio is 4:5 and LCM is 100 ?
(a) 20, 25   (b) 20, 30   (c) 20, 35   (d) 20, 40   (e) None of these

06 If Traffic Light change on the three different square after every 48 sec, 72 sec, 108 sec than when will they change again together if they changed 08:20:00 ?
(a) 08:20:08   (b) 08:24:10   (c) 08:30:12   (d) 08:30:15   (e) None of these

07 LCM of 6^5 x 8^5 will be following?
(a) $(24)^5$ (b) $(42)^5$ (c) $(48)^5$ (d) $(84)^5$ (e) $(6)^{15}$

08 Find out the minimum number & less 8 into them & divisible by 3, 6, 9 ?
(a) 10   (b) 26   (c) 18   (d) 62   (e) None of these

09 LCM of 56, 66 is how many more LCM of 76 ?
(a) 1776   (b) 1772   (c) 1848   (d) 1924   (e) None of these

10 find out LCM of $3^4, 3^5, 3^2, 3^0$?
(a) 243   (b) 234   (c) 81   (d) 0   (e) 1

11 Find out which maximum number divided by 148 & 274 & reminder remain ?
(a) 1   (b) 2   (c) 3   (d) 4   (e) 5

12 Find out which maximum number divided into 25, 15 & 30 & reminder remain 0?
(a) 1   (b) 25   (c) 15   (d) 10   (e) 5

13 Find out which maximum number divided into 63, 27 & 09 & reminder remain 1but if will be divisible by 2 ?
(a) 1   (b) 2   (c) 3   (d) 4   (e) 5

14 Probably use maximum length for measurement of 5m, 7m, 30m, 6m & 50m ?
(a) 10cm   (b) 30cm   (c) 50cm   (d) 5cm   (e) None of these

15 An business man get how much part in 3 long peace of wood that having length 35m, 42m & 65m ?
(a) 10cm   (b) 30cm   (c) 50cm   (d) 5cm   (e) None of these

16 Find out which maximum number divided by 307 & 330 & reminder remain 3 & 7 ?
(a) 19   (b) 16   (c) 17   (d) 23   (e) None of these

17 Find out HCF Number that divided into 261, 933 & 1381 & reminder remain 5 ?
(a) 128   (b) 64   (c) 32   (d) 16   (e) None of these

18 Find out HCF of $2^3, 3^2, 4, 15$?
(a) 2^3 (b) 3^2 (c) 1   (d) 360   (e) None of these

19 Find out HCF that fully divisible by 14, 92 & 36?
(a) 2^3 (b) 3^2 (c) 1   (d) 360   (e) None of these

ANSWER SHEET

L.C.M. AND H.C.F. EXERCISE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	B	C	C	A	E	A	B	B	A	C	E	B	A	C	A	C	C	C