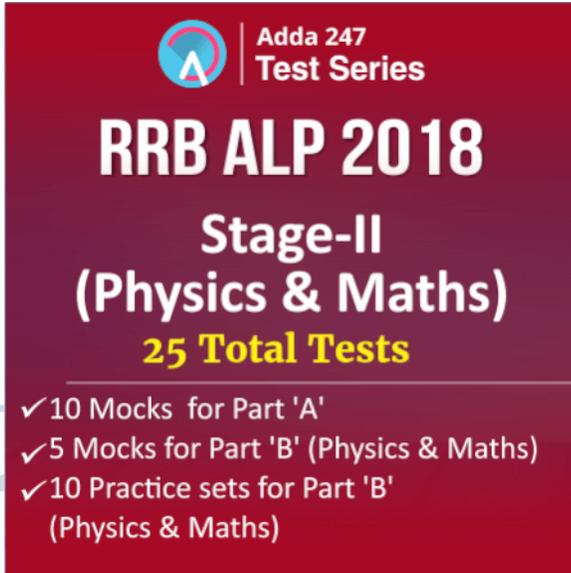


NUMBER SYSTEM (HCF | LCM)

1. L.C.M. and H.C.F. of Fractions

$$L.C.M = \frac{\text{L.C.M. of the numbers in numerators}}{\text{H.C.F. of the numbers in denominator}}$$

$$H.C.F = \frac{\text{H.C.F. of the numbers in numerators}}{\text{L.C.M. of the numbers in denominator}}$$



2. Product of two numbers

$$= \text{L.C.M. of the numbers} \times \text{H.C.F. of the numbers}$$

3. To find the greatest number that will exactly divide x, y and z.

$$\text{Required number} = \text{H.C.F. of } x, y \text{ and } z.$$

4. To find the greatest number that will divide x, y and z leaving remainders a, b and c, respectively.

$$\text{Required number} = \text{H.C.F. of } (x - a), (y - b) \text{ and } (z - c).$$

5. To find the least number which is exactly divisible by x, y and z.

$$\text{Required number} = \text{L.C.M. of } x, y \text{ and } z.$$

6. To find the least number which when divided by x, y and z leaves the remainders a, b and c, respectively. It is always observed that $(x - a) = (y - b) = (z - c) = k$ (say)

$$\therefore \text{Required number} = (\text{L.C.M. of } x, y \text{ and } z) - k.$$

7. To find the least number which when divided by x, y and z leaves the same remainder r in each case.

$$\text{Required number} = (\text{L.C.M. of } x, y \text{ and } z) + r$$

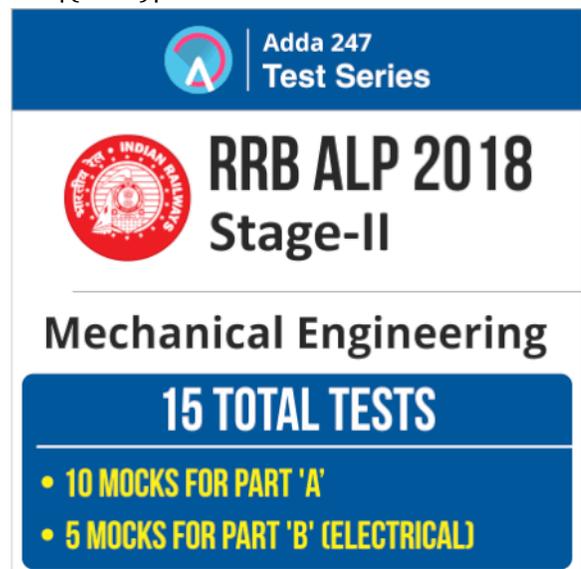
8. To find the greatest number that will divide x, y and z leaving the same remainder in each case.

(A) When the value of remainder r is given:

$$\text{Required number} = \text{H.C.F. of } (x - r), (y - r) \text{ and } (z - r).$$

(B) When the value of remainder is not given:

$$\text{Required number} = \text{H.C.F. of } |(x - y)|, |(y - z)| \text{ and } |(z - x)|$$



9. To find the n-digit greatest number which, when divided by x, y and z.

(A) leaves no remainder (i.e., exactly divisible)

Step 1: L.C.M. of x, y and z = L

Step 2: $\frac{L \times n\text{-digit greatest number}}{\text{Remainder} = R}$

Step 3: Required number = n-digit greatest number — R

(B) leaves remainder K in each case.

Required number = (n-digit greatest number — R) + K.



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Stage-II**

Electrical Engineering

15 TOTAL TESTS

- 10 MOCKS FOR PART 'A'
- 5 MOCKS FOR PART 'B' (ELECTRICAL)

10. To find the n-digit smallest number which when divided by x, y and z.

(A) leaves no remainder (i.e., exactly divisible)

Step 1: L.C.M. of x, y and z = L

Step 2: $\frac{L \times n\text{-digit smallest number}}{\text{Remainder} = R}$

Step 3: Required number = n-digit smallest number + (L - R).

(B) leaves remainder K in each case.

Required number = n-digit smallest number + (L - R) + k.



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