HCF and LCM – Complete Notes for Exams

1■■ Understanding the Concepts

HCF (Highest Common Factor): The greatest number that divides two or more numbers exactly.
LCM (Least Common Multiple): The smallest number that is exactly divisible by two or more numbers.

2■■ How to Identify HCF vs LCM in Word Problems

Situation	Keyword	Concept
Sharing/Dividing equally, greatest, maximum, exact number	Equally, maximum, greatest, cut	HCF
Repeating/Meeting together, least number/time	Together, again, minimum, least	LCM

3■■ Methods to Find HCF

• Prime Factorization Method: Take common primes with smallest powers.
• Division Method: Divide until remainder is 0; last divisor is HCF.

4■■ Methods to Find LCM

• Prime Factorization Method: Take all primes with highest powers.
• Division Method: Divide numbers by common primes till all 1’s remain.

5■■ Relationship Between HCF and LCM

Formula: HCF × LCM = Product of the numbers

6■■ Practice Questions (Identify HCF or LCM)

1. Find the greatest length of rope that can be cut into pieces of 45m, 60m, and 75m without waste. (HCF)
2. Find the least number divisible by 12, 18, and 24. (LCM)
3. Three bells ring together at intervals of 20s, 30s, and 40s. When will they ring together again? (LCM)
4. Maximum size of square tile for floor 18m × 24m. (HCF)
5. Least number of pages divisible into books of 12,15,20 pages. (LCM)
6. Greatest number dividing 105,175,210. (HCF)
7. Traffic lights blink after 48,72,108s. When again together? (LCM)
8. Fence plots with equal rope lengths 84m,108m,210m. (HCF)
9. Least number divisible by 24,36,40. (LCM)
10. Pack 120,180,240 apples in equal groups. (HCF)

■ You scored 10/10 in identification — Excellent grasp!