Cheat Sheet: Number System

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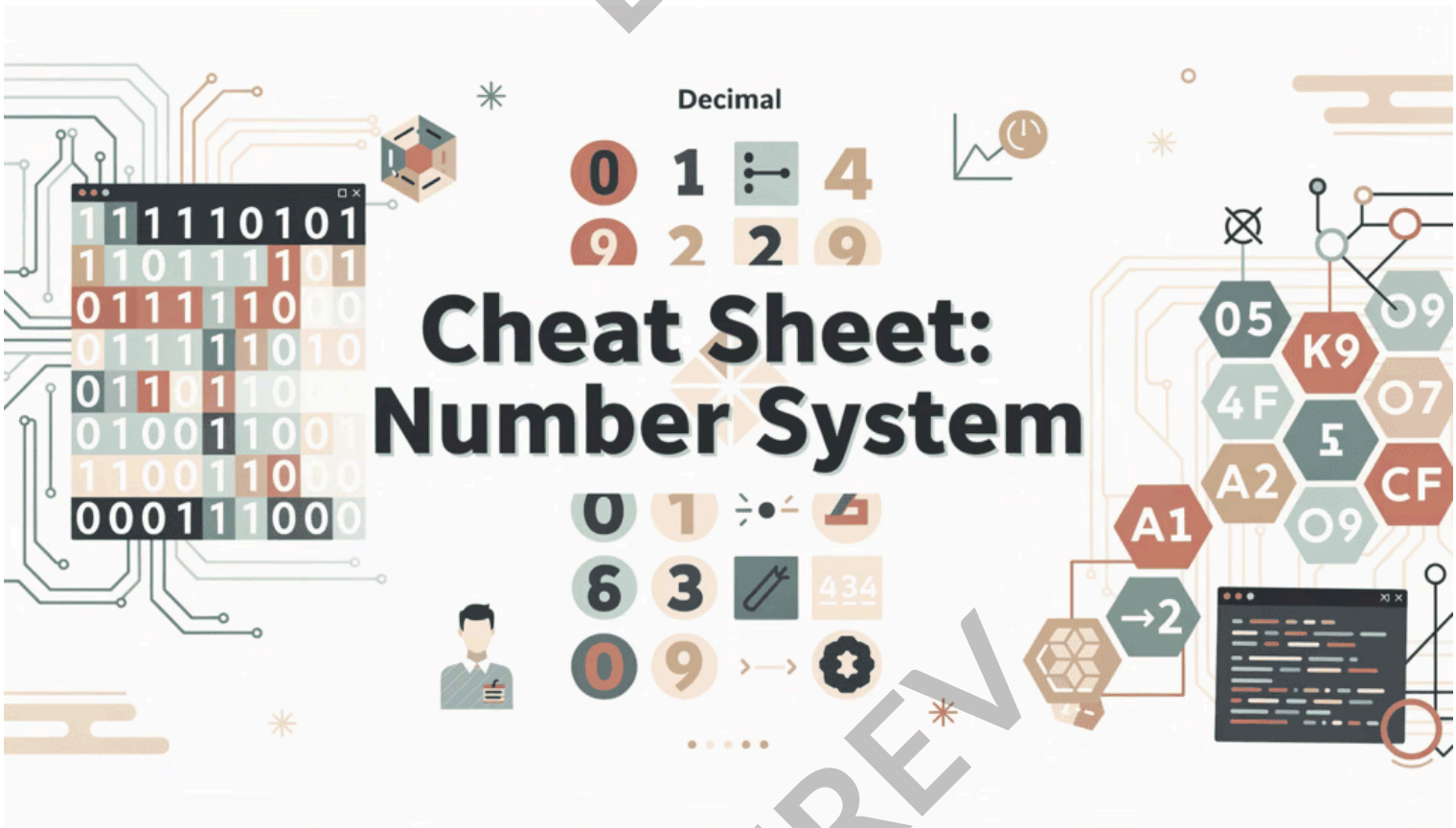

The Number System is one of the most **fundamental and frequently tested topics** in Bank exams. This section typically accounts for **3-5 questions** in the Quantitative Aptitude section.

EXAM PATTERN & WEIGHTAGE

Number of Questions: 3-5 questions (varies by exam)

Difficulty Level: Easy to Moderate

Time per Question: 30-45 seconds

Weightage: 10-15% of Quantitative Aptitude section

Expected Accuracy: 80-90%

1. Types of Numbers

Type	Definition	Examples
Natural Numbers (ℕ)	Counting numbers starting from 1	1, 2, 3, ...
Whole Numbers (W)	Natural numbers including zero	0, 1, 2, 3, ...
Integers (ℤ)	Whole numbers and negative numbers	-3, -1, 0, 4
Rational Numbers (ℚ)	Numbers expressible as p/q, q ≠ 0	2/3, -5, 0.25
Irrational Numbers	Non-terminating, non-repeating decimals	√2, √7, π
Real Numbers (ℝ)	All rational and irrational numbers	All numbers on number line

2. Divisibility Rules

Number	Rule
2	Last digit is even
3	Sum of digits divisible by 3
4	Last two digits divisible by 4
5	Last digit is 0 or 5
6	Divisible by both 2 and 3
8	Last three digits divisible by 8

Number	Rule
9	Sum of digits divisible by 9
11	Difference of sum of odd and even place digits is 0 or multiple of 11

3. Prime Numbers

A prime number has exactly two factors: 1 and itself.

Smallest prime number is 2.

2 is the only even prime number.

Number of prime numbers between 1 and 100 is 25.

4. LCM and HCF

LCM × HCF = Product of two numbers

HCF of fractions = HCF of numerators / LCM of denominators

LCM of fractions = LCM of numerators / HCF of denominators

5. Remainders and Cyclicity

Number	Cyclic Pattern
2	2, 4, 8, 6
3	3, 9, 7, 1
4	4, 6
5	5
6	6
7	7, 9, 3, 1
8	8, 4, 2, 6
9	9, 1

If a number leaves remainder r when divided by b, then a^n leaves remainder r^n when divided by b.

6. Number of Factors

If $n = p^a \times q^b \times r^c$

Total number of factors = $(a + 1)(b + 1)(c + 1)$

7. Perfect Numbers

A number is perfect if sum of its proper divisors equals the number.

Examples: 6, 28, 496

8. Unit Digit Rules

Expression	Unit Digit
Even number^n	Even
Odd number^n	Odd
5^n	5
6^n	6

9. Decimal Fractions

Terminating decimal: Denominator has only 2 and/or 5 as prime factors.

Non-terminating repeating decimal: Rational number.

Non-terminating non-repeating decimal: Irrational number.

10. Important Exam Facts

1 is neither prime nor composite.

Smallest composite number is 4.

Co-prime numbers have HCF = 1.

If HCF = 1, numbers need not be prime.