# Question 1:

Convert **(2F)₁₆** into its binary equivalent.

## Model Answer:

To convert hexadecimal (base 16) to binary (base 2):

1. Convert each hexadecimal digit to its 4-bit binary equivalent:

* **2** in hexadecimal is **0010** in binary.
* **F** in hexadecimal is **1111** in binary.

1. Combine the binary results:

* (2F)₁₆ = 0010 1111

So, **(2F)₁₆** i binary is **(00101111)₂**.

# Question 2:

Convert **(1101 0110)₂** into its decimal equivalent.

## Model Answer:

To convert binary (base 2) to decimal (base 10):

1. Assign place values to each bit starting from the right (from 2⁰ up to 2⁷):• 1 × 2⁷ + 1 × 2⁶ + 0 × 2⁵ + 1 × 2⁴ + 0 × 2³ + 1 × 2² + 1 × 2¹ + 0 × 2⁰

• = 128 + 64 + 0 + 16 + 0 + 4 + 2 + 0

• = 214

So, **(1101 0110)₂** in decimal is **(214)₁₀**.

# Question 3:

Convert **(345)₁₀** into its octal equivalent.

## Model Answer:

To convert decimal (base 10) to octal (base 8):

1. Divide the decimal number by 8 and record the remainders:

* 345 ÷ 8 = 43 remainder 1
* 43 ÷ 8 = 5 remainder 3
* 5 ÷ 8 = 0 remainder 5

1. Write the remainders in reverse order:

* (345)₁₀ = (531)₈
* So, **(345)₁₀** in octal is **(531)₈**.