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**Digital Logic Design (CS302)**

Assignment # 01

### Steps:

1. Split into IEEE 754 Components:
   * Sign (S): 1 (indicates the number is negative).
   * Exponent (E): 10001001 (binary).
   * Mantissa (M): 10110101011010111000111 (fractional part).
2. Calculate Exponent:
   * Binary 10001001 → Decimal: E=27+23+20=137.
   * Actual Exponent: E−127=137−127=10.
3. Normalize Mantissa:
   * The implicit leading 1 makes M=1.10110101011010111000111.
   * Convert fractional part:
4. Compute Decimal Value:
   * Formula: Value=(−1)S×2Exponent×M
   * Substitute values: Value=(−1)1×210×1.7108154296875
   * 210=1024, so: Value=−1×1024×1.7108154296875=−1752.6357421875

### Final Answer:

−1752.6357421875