

Dr. Neeru Sharma

COURSE CODE: 10B11EC401

MAX. MARKS: 15

COURSE NAME: Digital Electronics

COURSE CREDITS: 04

MAX. TIME: 1HR

Note: All questions are compulsory. Carrying mobile phone during examinations will be treated as a case of unfair means.

1. Perform the following conversions

[5 Marks] [CO-1]

- (i) 287 in decimal to octal
- (ii) 2AB in hexadecimal to octal
- (iii) 1101.11 in binary to decimal
- (iv) 205.05 in decimal to binary
- (v) $16_{10} = 100_b$, determine the value of b
- (vi) 43-67 using 2's complement method
- (vii) Express 345 in octal in 7's complement
- (viii) 3456 in decimal in 9's complement
- (ix) Convert $3A7_{16}$ to Gray Code
- (x) Express 43 in XS-3 Code

2. Express 532 in 8421, 2421, 5211 and 84-2-1 codes.

[2 Marks] [CO-1]

3. Given the 8-bit data word 01011011, generate the 12-bit composite word for the Hamming code that corrects and detects single errors.

[3 Marks] [CO-2]

4. Simplify the following functions

[3 Marks] [CO-1]

(i) $f(A, B, C, D) = \overline{A}\overline{B} + \overline{B}\overline{C} + \overline{A}\overline{D} + CD$

(ii) $f(A, B, C) = \overline{A}\overline{B}\overline{C} + \overline{A}B\overline{C} + A\overline{B}\overline{C} + ABC$

5. How can X-OR gate be used as an inverter? List five properties of X-OR.

[2 Marks] [CO-2]
