

BSc DEGREE EXAMINATION DECEMBER 2017
(Third Semester)

Branch – MATHEMATICS WITH COMPUTER APPLICATIONS

DIGITAL ELECTRONICS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 Convert $(72)_{10}$ to binary value.
- 2 What is meant by Excess – 3 code?
- 3 Draw the EX-NOR gate and write its truth table.
- 4 What do you mean by Octal?
- 5 How many inputs for Half adder and full adder?
- 6 What do you mean by decoder?
- 7 Write the states of the JK – flip flop when $J = 1; K = 0$ and $J = 0; K = 1$.
- 8 Write the types of register.
- 9 What is meant by accuracy?
- 10 What do you mean by counter?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Convert the following binary numbers to Gray code: (i) 110110 (ii) 111000.
OR
- b Convert (i) $(1101101)_2$ to decimal (ii) $(4526)_{10}$ to Hexadecimal.
- 12 a Prove Distributive and associative laws.
OR
- b Prove De-Morgan's theorem.
- 13 a Perform the binary addition. (i) $11011 + 110$ (ii) $100101 + 10011$.
OR
- b Explain the working of 4 x 2 line encoder with neat diagram.
- 14 a Explain the working of T- flip flop with neat diagram.
OR
- b Explain the working of serial – in – serial – out register with neat diagram.
- 15 a Explain the speciality of counter type ADC.
OR
- b Explain the binary ladder network.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Convert (a) 125 to BCD code (b) $(AB)_{16}$ to Decimal (c) $(76)_{10}$ to Excess–3 code.
- 17 Draw the K-map and solve the following Boolean expressions:
(a) $F(A, B, C) = \sum (0, 1, 3, 5)$ (b) $F(w, x, y, z) = \sum (0, 5, 7, 8, 11, 13, 15)$.
- 18 Draw Block diagram and working of 4-bit parallel binary adder.
- 19 Write note on working of JK – Master slave flip flop with neat diagram.
- 20 Discuss in detail about accuracy and resolution.