Madan Mohan Malaviya University of Technology, Gorakhpur

Electronics and Communication Engineering Department

DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION (BEC-201)

TUTORIAL: - UNIT-II

Q.1.	Design and discuss the combinational circuit for a. Half adder b. Full adder c. Half subtractor d. Full subtractor
Q.2.	Define an encoder, also describe Priority encoder.
Q.3.	Define Multiplexer. Also Design the following gates using minimum number of 2×1 Mux. (a) NOT (b) AND (c) OR (d) XOR
Q.4	Realise the following Boolean expression using a 2×1 Multiplexer $F(A,B,C) = \sum m(0,1,3,5,6)$
Q.5	Realise the following Boolean expression using a 4×1 Multiplexer $F(A,B,C,D) = \sum m(0,1,3,8,9,15)$
Q.6.	Explain about the J-K flip-flop. What is Race-around condition in J-K flip-flop and what is its remedy?
Q.7.	Describe the working of Master-Slave JK Flip-Flop with Truth Table and Logic diagram.
Q.8.	Define decoder and realize the following function using decoder: $F1 = \Sigma\, m\,(1,2,5,6,7,11,14)$ $F2 = \pi\, M\,(0,1,2,5,6,7,8,11,12,15)$
Q.9.	Design 3-bit synchronous counter and draw output waveform.
Q.10.	What is the purpose of decoder? Explain the functioning of a BCD to Decimal Decoder circuit.
Q.11.	Explain about counters. What is the Difference between Synchronous and Asynchronous Counters?
Q.12.	Explain about different types of shift register.