

Roll No.

22148

M. Tech. 2nd Semester (E.C.E.)

Examination – May, 2016

ELECTRONICS SYSTEM DESIGN

Paper : MEEC-502

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Design a BCD to seven segment converter. 10
- (b) Implement the following function with single 8×1 multiplexer with B, C and D are to be select lines : $F(A, B, C, D) = \sum(0, 1, 3, 4, 8, 9, 15)$. 10
2. (a) Draw circuit diagram of R-S type flip-flop. Design a JK flip-flop using R-S flip-flop. What is clock skew ? 10

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- (b) Given $F = \sum m(2, 4, 5, 6)$ implement $F(L)$ and $F(H)$ with an A-O-I- devices. 10
3. (a) Draw and fully label the general model of a sequential finite state machine. 10
- (b) Design a synchronous counter up or down and follow the sequence : 0, 1, 3, 2, 6, 4. Check the design against the lock out conditions. 10
4. (a) What is system controller ? Discuss the controller design phase and system documentation. 10
- (b) Explain the MDS diagram construction concepts with flow diagram. 10
5. (a) Discuss the hazards in circuit development by MEV method. 10
- (b) What are essential Hazards ? How these Hazards effect the operation of a machine ? Discuss. 10
6. Explain the various MEV approaches to asynchronous circuit in detail. 20
7. (a) What is tri-state logic circuit and how does it help building a tri-state bus system ? Discuss the advantages of this logic in reducing hardware in system implementation. 10
- (b) Using steps and rules for design of asynchronous machines, design a Basic Binary Cell. 10
8. (a) Write a detailed note on electromagnetic interference and electromagnetic compatibility grounding and shielding in digital circuits. 10
- (b) What are the timing and frequency considerations for designing system controller ? 10