

Roll No.

24143

**B. Tech. 4th Semester (EE)
Examination – May, 2017**

DIGITAL ELECTRONICS

Paper : EE-204-F

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 five questions. Question No. 1 is compulsory and one question from each of four Sections. All questions carry equal marks.

1. (a) Differentiate between ASLC and SSLC.
- (b) Draw and explain 4 : 1 multiplexer.
- (c) Design EX-OR gate using NAND gate.
- (d) What is Latch ?

20

SECTION – A

2. (a) Simplify and design the given Boolean function using K-map. 15
$$Y = \sum m(0, 4, 8, 12, 16, 18, 20, 22) + \sum d(24, 26, 28, 30, 31)$$
- (b) Write in brief about cyclic code. 5
3. (a) 7 bit Hamming code is received as 1101101. Locate the error position and find the correct code. 10
- (b) Explain Full adder with truth table and circuit. 10

SECTION – B

4. (a) Design a BCD to 7 segment decoder. 10
- (b) Give differences between combinational and sequential circuit. 10
5. (a) What is race round condition and how we can remove it? 10
- (b) Construct a D-flip flop using JK- flip flop. 10

SECTION – C

6. What is a shift register. Draw circuit diagram for :
- (i) Serial in/Parallel out.
- (ii) Parallel in/Serial out shift registers using J-K Flip-Flops. 20
7. (a) Draw block diagram, truth table and ckt for 1-bit comparator. 10
- (b) Implement the full adder with decoder circuit. 10

SECTION – D

8. (a) Implement full adder using PLA. 10
- (b) Define primitive flow table and non-primitive flow table. 10
9. Write short notes on : 20
- (a) PLA and PAL.
- (b) Algorithm State Machine (ASM).