Roll No. .....

24043

B. Tech 3rd Semester (IT)

Examination – December, 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 Sections. All questions carry equal marks.

1. (a) What is Latch ? $5 \times 4 = 20$

(b) Realize EX-OR gate using NAND gate.

(c) Differentiate :

Ripple counter and synchronous counter.

(d) Draw and explain circuit for one bit comparator.

SECTION – A

2. (i) Multiply $(5.65)_8$ by $(2.432)_8$ 20

(ii) Divide $(50.1)_8$ by $(3)_8$

(iii) Convert $(ABD73)_{16}$ into $(\ )_8$

(iv) Convert $(34674)_8$ into $(\ )_2$

(v) Subtract 8 – 10 using 2's compliment.

3. (a) What are universal gates ? Derive basic gates from universal gates. 10

(b) Design the ckt. after minimizing using k-map 10

$f(A, B, C, D) = \Sigma(0, 1, 2, 3, 6, 7, 9, 13) + \Sigma(11, 15)$

SECTION – B

4. (a) Explain full adder with truth table and circuit. 10

(b) Explain 3-8 decoder. 10

5. (a) Design BCD to 7 segment decoder. 10

(b) Seven bit hamming code is received as 1011001 locate the error position and find the correct code, if even parity is used. 10

SECTION – C

6. (a) What is race round condition and how we can remove it ? 10

(b) Explain bidirectional shift register. 10

7. (a) Construct D-flip flop using JK-flip flop. 10

(b) Explain 4 bit comparator. 10

SECTION – D

8. (a) Design the circuit of half adder using ROM. 10

(b) Explain TTL. 10

9. Write short notes on : 20

(a) PLD's and CPLD's

(b) PAL and PLA