Total No. of Questions : 5] [Total No. of Printed Pages : 3

Roll No. .....

EC–403(N)

B. E. (Fourth Semester) EXAMINATION, Dec., 2010

(New Scheme)

(Electronics & Communication Engg. Branch)

DIGITAL ELECTRONICS

[EC–403(N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. All questions have choice. All questions carry equal marks.

1. Convert the following terms : 20

   (i) $(153 \cdot 6875)_{10} = (\ )_8$

   (ii) $(26153 \cdot 7406)_8 = (\ )_{16}$

   (iii) $(630 \cdot 4)_8 = (\ )_{10}$

   (iv) $(60236002)_8$ divide by $(256)_8$

   (v) $(7643)_8 = (\ )_2$

   (vi) $(001111001010101)_2 = (\ )_{16}$

   Or

   Explain the following methods : 10, 10

   (i) Karnaugh's map method

   (ii) Quine and McCluskey's method

2. (a) Describe full adder and full substractor with diagram and table. 10

(b) Explain multiplexer and demultiplexer. 10

Or

(a) Discuss design and analysis of combinational circuit. 10

(b) Minimize the following function using Karnaugh map and realize the minimized function using NOR gates : 10

$$F(A, B, C, D) = B\bar{C} + \bar{A}B + BC\bar{D} + \bar{A}\bar{B}D + A\bar{B}\bar{C}D$$

3. (a) What is multivibrator ? Explain monostable and bistable multivibrator. 10

(b) Define flip-flop. Give their types and explain JK-flip-flop in details. 10

Or

Explain the following terms : 20

(i) D-flip-flop

(ii) Synchronous and asynchronous counters

(iii) Johnson and ring counter

4. What is computer memory ? Give classification of memory system. Discuss EEPROM, PAL and PLAs. 20

Or

Explain the construction and organization of the following memories : 20

(i) SRAM

(ii) DRAM

(iii) ROM

(iv) PROM

5. (a) Compare the following logic families : RTL, DTL, TTL and ECL. 10

(b) Describe PMOS, NMOS and CMOS logic. 10

Or

Write short notes on the following : 20

(a) Universal gates

(b) Clocked R-S flip-flop

(c) Binary ripple counter