Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE)/(Electrical & Electronics)/(Electronics & Electrical)(2011 onwards)
B.Tech.(Electrical Engineering & Industrial Control) (2012 Onwards)
(Sem.–4)

DIGITAL ELECTRONICS

Subject Code : BTEC-404
Paper ID : [A1207]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

1. Answer briefly :

a. What is Hamming code? Discuss.

b. What do you mean by BCD code? Explain.

c. Differentiate between multiplexer and an encoder.

d. State DeMorgan's theorems.

e. What is the significance of Truth table? Discuss.

f. Differentiate between RAM and ROM.

g. What do you mean by VHDL? Discuss.

h. Discuss the significance of T flip-flop.

i. Explain the terms Fan-in, Fan-out and unit load with respect to the logic families.

j. What are the advantages of R-2R ladder digital to analog converter over weighted resistor type digital to analog converter?

SECTION-B

2. Discuss Binary, Octal and Hexadecimal number systems. Convert the binary number 10 101010101 to hexadecimal and octal numbers.

3. **Reduce** the following expression to simplest **Sum of product** from using K-Map

$$\sum m(0,1,2,10,11,12,13)$$

4. Draw the logic diagram and explain the working of JK flip-flops.

5. Discuss TTL and RTL logic families.

6. Explain the programmable logic arrays in detail.

SECTION-C

7. Draw and explain the working of a successive approximation and dual slope type A/D converters.

8. Discuss the following :

   a. Decision control structure using VHDL.

   b. Direct coupled transistor logic.

9. Draw and explain the working of :

   a. 4-bit up counter.

   b. Half and Full Adder.