Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) PT (Sem.–3)

DIGITAL ELECTRONICS

Subject Code : BTEE-404

M.Code : 72164

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 have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

(a) Convert $(7825.6875)_{10}$ to octal.

(b) Multiply $(1010)_2$ by $(1011)_2$.

(c) Simplify the Boolean expression : $\overline{(A+B)} \cdot \overline{(\overline{A}+\overline{B})}$

(d) How much the number of cells in the Karnaugh map of a switching function (A,B,C) consisting of only three variables?

(e) Differentiate between Flip-flop and latch.

(f) To describe an entity, VHDL provides five different types of primary constructs, called design units, write the names of those primary constructs.

(g) Differentiate between NMOS and PMOS logic family.

(h) What is the conversion time of a 10 bit successive approximation A/D converter if its clock is 4 MHz?

(i) Differentiate between static RAM and dynamic RAM.

(j) Calculate the address lines required for an 8 K byte memory chip.

SECTION-B

2. Construct Hamming code for 1 0 1 1 1 0 0 1. Use odd parity.

3. Explain with the help of example, the Principle of Duality. Discuss its use in Boolean algebra.

4. Explain a general method for conversion from one type of flip-flop to another type.

5. Explain the entity declaration for the half-adder circuit.

6. Compare various characteristics of different types of A/D converters.

SECTION-C

7. Design a mod 12 ripple counter using J K flip-flops.

8. What is the basic principal reason why ECL logic is faster than TTL? Draw and explain DTL logic circuit.

9. Convert 4 K × 8 memory to 64 K × 8 memory.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.