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Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(IT) (Sem.-2) DIGITAL CIRCUITS & LOGIC DESIGNS Subject Code : BSIT-204 M.Code : 72727 Date of Examination: 20-12-22

Time : 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

- 1) Answer briefly :
 - a) What is De-Morgan's theorem?
 - b) When will be NAND gate output low? Write complete table.
 - c) What do you mean by combinational circuits?
 - d) Define ALU.
 - e) Define Half Adder.
 - f) What is difference between a multiplexer and demultiplexer?
 - g) What do you mean by clock pulse generator?
 - h) Differentiate between latch and flip-flop.
 - i) Define MoD-N counter.
 - j) What is a priority encoder?

SECTION-B

- 2) What is a Number system? What is the need for a number system? What are the different types of number systems? Discuss the characteristics of each.
- 3) a) Explain J-K Master slave FF with the help of circuit diagram.
 - b) Simplify the following Boolean expression using Karnaugh map method

$$Z(x,y,z) = \Sigma(2,3,6,7)$$

- 4) What is a Multiplexer Implement the SUM and CARRY Boolean functions of full adder with multiplexers?
- 5) Show the logic circuit for this Boolean equation $Y = (A'+B) \cdot (A+B)$. Then, simplify the circuit as much as possible using algebra.
- 6) What is the difference between four-bit binary UP and four-bit binary DOWN counter? Explain with the help of suitable diagrams.
- 7) Design a four-line to two-line priority encoder with active HIGH inputs and outputs, with priority assigned to the higher order data input line.

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.