

Roll No.

Total No. of Pages : 02

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B.Tech. (Artificial Intelligence & Machine Learning / Artificial Intelligence (AI) and Data Science / Artificial Intelligence / CSE / Data Science / IT / CSE (Internet of Things and Cyber Security including Block Chain Technology) / Computer Engg.)

B.Tech. (CSE) (Artificial Intelligence & Machine Learning) / (CSE) (Cyber Security) / (CSE) (Data Science) / (CSE) (IOT) (Sem.-3)

**DIGITAL ELECTRONICS**

Subject Code : BTES-301-18

M.Code : 76435

Date of Examination : 12-01-23

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 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**

Write briefly :

- a) Convert binary number 11010101 into octal and hexadecimal numbers.
- b) Explain ASCII codes.
- c) Give the applications of Gray codes.
- d) State De-Morgan's Theorem.
- e) Describe Minterms and Maxterms.
- f) Draw half adder circuit diagram.
- g) What do you mean by Ripple counters?
- h) Draw SIPO, SISO, PISO and PIPO shift registers.

- i) Enlist various memories.
- j) Classify D/A conversion techniques.

#### SECTION-B

2. Design all other logic gates using 2 inputs NOR gates.
3. Minimize the function  $F = \sum m(1,2,3,5,6,8,9)$  using K-Map.
4. Design Full subtracter with truth table, circuit diagrams.
5. Design mod-6 up counter.
6. Draw and explain complex programmable logic devices.

#### SECTION-C

7. Design BCD to 7 segment decoder.
8. Explain counter type analog to digital converters.
9. Encode Decimal number 56 into binary, octal, hexadecimal, BCD, Gray and Excess 3 codes.

**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.**