

Roll No. 

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE/IT) (2018 Batch) (Sem.-3)

**DIGITAL ELECTRONICS**

Subject Code : BTES-301-18

M.Code : 76435

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 :**

- 1) What are the universal gates? Justify.
- 2) State De-Morgan's Theorem.
- 3) Write the characteristic equation of  $4 \times 1$  multiplexer.
- 4) State the differences between combinational and sequential circuits.
- 5) Draw the excitation table of D flip flop.
- 6) Convert 101011 into Decimal system & Octal system.
- 7) Draw the state diagram of 3 bit up counter.
- 8) State the functions of flip flops.
- 9) Define Melay machine with state diagram.
- 10) Compare PLA, PAE and PROM.

## SECTION-B

- 11) Design a  $5 \times 32$  decoder using  $3 \times 8$  decoder and summarize that how many decoders are required for designing?
- 12) Design a two bit magnitude comparator and draw its logic circuit.
- 13) Elucidate the design procedure of synchronous sequential circuits.
- 14) Perform the following addition by 2's complement :
  - a) 20 to -26
  - b) 25 to -15.
- 15) What are various laws for Boolean logic simplification?

## SECTION-C

- 16) Design and implement BCD to gray code converter using PAL.
- 17) a) What are the different logic gates? Give their truth tables.  
b) Write a short note on static, bipolar and MOSFET RAM cell.
- 18) Draw the logic circuit, excitation table & truth table of RS Flip-Flop.

**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.**