



# GOVERNMENT COLLEGE OF ENGINEERING, JALGAON

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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **ET203U - Digital Circuits and Systems Design**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

- 1) Solve any three sub questions
  - a) Discuss CMOS as a inverter. [6]
  - b) What are the different types of read only memory (ROM)? Explain. [6]
  - c) Implement EXOR and EXNOR function using NAND gates. [6]
  - d) What are the characteristics of digital logic families? [6]
- 2) Solve any three sub questions
  - a) Determine the single error correcting code for the information code 10111 for odd parity. [6]
  - b) Convert D flip-flop to T flip-flop [6]
  - c) Implement half adder circuit using basic gates [6]
  - d) Implement the following Boolean function with NOR-NOR logic [6]  
 $f = (A,B,C) = \pi M(0,2,4,5,6)$
- 3) Solve any three sub questions
  - a) Draw the logic diagram for 3 stage asynchronous counter with negative edge triggered flip-flop. [6]
  - b) What are the random access memory? State their types and explain. [6]
  - c) Design 1:8 demultiplexer using two 1:4 demultiplexer. [6]
  - d) Implement gray code to binary code converter [6]
- 4) Solve
  - a) Convert
    - i.  $(111101100)_2$  to octal equivalent [1]
    - ii.  $(634)_8$  to binary number [1]
    - iii.  $(725.63)_8$  to binary number [1]
    - iv.  $(3FD)_{16}$  to binary number . [1]
    - v.  $(615)_8$  to hexadecimal number [1]
    - vi.  $(567)_8$  to decimal number [1]

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