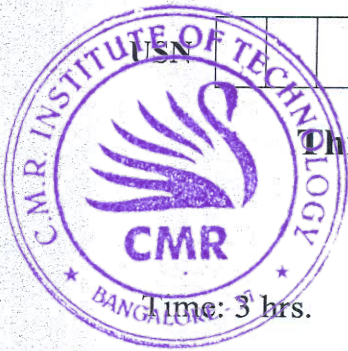


CBBCS SCHEME

15CS32



Third Semester B.E. Degree Examination, Jan./Feb. 2023 Analog and Digital Electronics

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain construction and working principle of operations of n-channel D-MOSFET along with its drain and trans-conductors characteristics. (10 Marks)
- b. Explain any two applications of FETs with circuit diagram. (06 Marks)

OR

- 2 a. With a neat diagram and waveforms, explain astable multivibrator using 555 timers. (08 Marks)
- b. With a neat diagram and waveform, explain the working of relaxation oscillator. (08 Marks)

Module-2

- 3 a. Explain positive and negative logic. List the equivalence between them. (08 Marks)
- b. Find the minimal SOP form for the given min-terms using K-map, (08 Marks)
$$F(A, B, C, D) = \sum m(4, 5, 6) + d(10, 12, 13, 14, 15)$$

OR

- 4 a. Simplify the expression using Quine-Mcclusky method and find the prime implicants and Essential prime implicants and realize the obtained expression using NAND gates. (10 Marks)
$$F(A, B, C, D) = \sum m(0, 1, 2, 3, 10, 11, 12, 13, 14, 15)$$
- b. Define Hazard. Explain different types of Hazards. (06 Marks)

Module-3

- 5 a. What are multiplexers? Design 8 : 1 multiplexer using 2 : 1 multiplexer and explain. (10 Marks)
- b. Explain Parity generator and checkers with an example. (06 Marks)

OR

- 6 a. What is an Adder? Explain with truth table the half Adder, full Adder, half subtractor and full subtractor. (10 Marks)
- b. Explain seven segment decoders and types of decoders. (06 Marks)

Module-4

- 7 a. With a neat logic diagram and truth table explain the working of J-K Master Slave flip-flop using NAND gates. (10 Marks)
- b. Explain switch contact bounce circuits. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 10 a. Explain 2-bit simultaneous A/D converter. (10 Marks)
b. Explain the terms accuracy and resolution for D/A converter. (06 Marks)

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OR

- 8 a. What is a register? With neat diagram, explain 4-bit Parallel-in-serial out shift register. (10 Marks)
b. Explain with a neat diagram, how a shift register can be applied for serial addition. (06 Marks)

Module-5

- 9 a. Construct asynchronous counter for the sequence mod-8 using J-K flip flop. (10 Marks)
b. Explain with neat diagram the working principle of Decade counter. (06 Marks)

OR

- 10 a. Explain 2-bit simultaneous A/D converter. (10 Marks)
b. Explain the terms accuracy and resolution for D/A converter. (06 Marks)

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