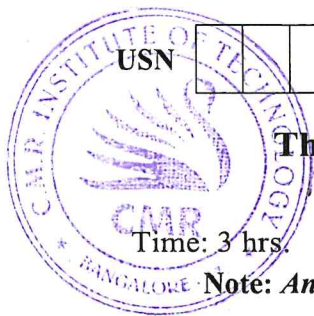


# CBCS SCHEME

15CS32



## Third Semester B.E. Degree Examination, Aug./Sept. 2020 Analog and Digital Electronics

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Explain the working of N-channel E-MOSFET, with the help of neat diagram. (08 Marks)  
b. With the circuit diagram explain any four applications of FET. (08 Marks)

OR

- 2 a. Explain the performance parameters of op-amp. (08 Marks)  
b. Explain Relaxation Oscillator with diagram. (08 Marks)

### Module-2

- 3 a. Simplify following Boolean functions using k-map method.  
i)  $F(A, B, C, D) = \pi M(0, 1, 2, 4, 5, 10) + d(8, 9, 11, 12, 13, 15)$   
ii)  $F(A, B, C, D) = \sum m(0, 2, 3, 8, 10, 11, 12, 14)$  (08 Marks)  
b. Explain Universal gates in brief. (08 Marks)

OR

- 4 a. What is Hazard? Explain its types with example. (08 Marks)  
b. Apply QUINE-McClusky method to find prime implicants for the Boolean expression  $F(A, B, C, D) = \sum m(1, 2, 8, 9, 10, 12, 13, 14)$ . (08 Marks)

### Module-3

- 5 a. Define Multiplexer, List types of multipliers Implement the following function using 4 to 1 Mux  $f(a, b, c) = \sum m(0, 4, 5, 6)$  (08 Marks)  
b. Define decoder, Implement 3-8 decoder for the expression  $F(A, B, C) = \sum m(2, 4, 5, 7)$ . (08 Marks)

OR

- 6 a. Design Seven Segment decoder using PLA. (08 Marks)  
b. Design Full adder circuit. (08 Marks)

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### Module-4

- 7 a. Explain the working of JK Master – Slave flip-flop with diagram. (08 Marks)  
b. Draw the state transition table of J-K, SR, T and D-flip-flops. (08 Marks)

OR

- 8 a. Explain Ring and Johnson counter with diagram. (08 Marks)  
b. What is Shift Register? With neat diagram, explain the serial in parallel out Shift Register. (08 Marks)

### Module-5

- 9 a. Define Counter, Design and implement a MOD – 6 synchronous counter using J-K flip-flop. (08 Marks)  
b. With neat diagram, explain Digital clock (08 Marks)

OR

- 10 a. Explain with circuit diagram, decade counter. (08 Marks)  
b. Explain 2-bit Simultaneous A/D converters. (08 Marks)

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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.

