CBCS SCHEME

USN | | | | | | | | | | |

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. Simpify 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 implecants 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 multiplers 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)**

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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