Total No. of Questions – [08]

Total No. of Printed Pages- [02]

G.R. No.	

Paper Code - U219-1285 (BE-F & Fs)

DECEMBER 2019/ENDSEM - Backlog Exam

S. Y. B. TECH. (COMPUTER ENGINEERING) (SEMESTER - I)

COURSE NAME: DIGITAL SYSTEMS AND LOGIC DESIGN

COURSE CODE: CSUA21175

(PATTERN 2017)

Time: [**2 Hours**] [Max. Marks: **50**]

Instructions to candidates:

1) **Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a) Minimize the following function using K – map and realize it with basic gates. [6]

$$F(A, B, C, D) = \sum m(0,1,2,5,8,10,11,14,15)$$

OR

b) Simplify the four variable Boolean function using Quine McCluskey Method. [6]

$$F(A, B, C, D) = \sum m(0,1,2,3,5,7,8,10,12,13,15).$$

Q.2) a) Design 4-bit Excess-3 to BCD code converter. Use logic gates as per your design and requirement. [6]

OR

b) Implement a 2 Bit Comparator along with truth table, k-map and logic diagram using gates. [6]

Q.3) a) Design a divide by 96(MOD-96) counter using 7490 ICs. [6]

OR

b) Differentiate between synchronous and asynchronous counters along with diagram. [6]

Q.4) a) Draw the architecture for PAL and PLA. [4]

OR

b) What are the applications of PLD's? [4]

Q. 5) a) What is VHDL? Write VHDL code for structural model of full adder. [6]

b) Draw an ASM chart to describe a mealy state machine that detects a sequence of 101 and that asserts a logical 1 at the output during the last state of the sequence. [4]

c) What is ASM chart? Explain Mux Controller method using suitable example. [4]

OR

Q.6) a) State the differences between concurrent and sequential statements of VHDL. [6]

b) What are the advantages of VHDL. [4]

c) Compare ASM & VHDL. [4]

Q.7) a) Explain Arduino architecture in detail. [6]

b) Write short note on soldiering techniques? [4]

c) What is the classification of logic families? [4]

OR

Q.8) a) Explain the parameter to characterize logic families. [6]

b) What are the applications of Raspberry pi? [4]

c) Explain CMOS and RTL? [4]

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