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B.E SEMESTER III EXAMINATION May- 2023

SUBJECT CODE: CT304-N

SUBJECT NAME: Digital Electronics

DATE: 13/05/2023

TIME: 10:00 AM TO 1:00 PM

TOTAL MARKS: 70

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate **clearly**, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

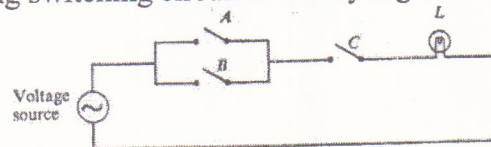
Section - 1

Marks

- Q:1** (A) Convert the following number system into the decimal [05]
a. $(1001001.011)_2$ b. $(167)_8$ c. $(AB.5)_{16}$ d. $(4310)_5$ e. $(50)_7$
- (B) Perform the subtraction with the following decimal numbers using 10's complement [05]
a) $5250 - 321$
b) $753 - 864$
- (C) Perform the subtraction with the following ~~decimal~~ ^{Binary} numbers using 1's complement [05]
a) $11010 - 1101$
b) $11010 - 10000$

OR

- (C) Express the following switching circuit in binary logic notation. [05]



- Q:2** (A) Obtain the truth table of the function [05]
 $F = xy + xy' + y'z$
- (B) Express the following functions in a sum of min terms and a product of max terms [05]
a) $F(A, B, C, D) = D(A' + B) + B'D$
b) $F(w, x, y, z) = y'z + wxy' + wxz' + w'x'z$

OR

- Q:2** (A) Convert the following to the order canonical form [05]
a) $F(x, y, z) = \Sigma(1, 3, 7)$
b) $F(x, y, z) = \Sigma(0, 2, 6, 11, 13, 14)$
- (B) Explain the demorgan's theorem for 3 variables. [05]
- Q:3** (A) Explain Full Adder in details. [05]
(B) Explain BCD to Excess-3 code conversion. [05]

OR

- Q:3** (A) Comparisons between encoder and decoders. [05]
(B) Explain 4 X 1 Multiplexer in detail. [05]

Section - 2

- Q:4** (A) Explain clocked RS Flip Flop with 2 AND and 2 NOR gates. [05]
(B) Distinguish [05]
Combinational Switching circuits vs. Sequential Switching circuits
- (C) Explain 4- bit register with Parallel load. [05]

OR

(C) Explain Master Slave Flip Flop using J – K Flip Flops. [05]

Q:5 (A) Explain the Programmable Array Logic. [05]

(B) What do you mean by the term 'excitation table'? What information does it give? [05]

OR

Q:5 (A) What do you mean by the term 'state diagram'? What do the Vertices, the directed arcs, and the labels on the arcs of a state diagram represent? [05]

(B) Explain the Programmable Logic Devices. [05]

Q:6 (A) Explain Successive Approximation A/D converter. [05]

(B) Explain D/A converter binary Weighted Resistor. [05]

OR

Q:6 (A) Explain D/A converter R-2R Ladder circuits with any one example. [05]

(B) Explain Dual slope type A/D converter. [05]

-----All the Best -----