



Question Paper Code:

EC303PC

ACE-R20

Semester Supplementary Examination
II B. Tech- I Semester- SEPTEMBER-2022
Switching Theory and Logic Design
(Electronics and Communication Engineering)

Time: 3 Hours**Max. Marks: 70**

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Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks
1. a)	Convert the following i) $(53.625)_{10}$ to $(?)_2$ ii) $(A69.8)_{16}$ to $(?)_{10}$	7
b)	Why a NAND and NOR gates are known as universal gates? Simulate all the basic Gates.	7
2. a)	Expand the following expression into minterms and maxterms. $F(A, B, C) = A + BC + AC$	7
b)	Simplify the following Boolean expressions using the Boolean theorems. (i) $(A+B+C)(B'+C) + (A+D)(A'+C)$ (ii) $(A+B)(A+B')(A'+B)$	7
3. a)	Design combinational circuit by converting BCD code to Excess-3 Code.	7
b)	Minimize the following expression using K-map and realize using NAND Gates. $F(A, B, C, D) = \sum m(0, 1, 2, 9, 11) + d(8, 10, 14, 15)$.	7
4. a)	Implement the 32:1 multiplexer using Two 16:1 Multiplexers	7
b)	Realize D-FF and T-FF using JK-FF. Draw the logic diagrams with their truth tables	7
5. a)	What do you mean by universal shift register? Draw and explain its circuit diagram and operation	7
b)	Explain the operation of 4-bit ring counter with circuit diagram and timing diagrams.	7
6. a)	What is the need of parity generator? Explain with an example.	7
b)	What are the Moore and Melay machines? Compare them.	7
7. a)	Design and construct MOD-5 synchronous counter using JK flip flops	7
b)	Briefly explain the Transistor Transistor Logic (TTL) with an example	7
8. a)	Compare CMOS with TTL Logic families	7
b)	Write a short notes on CMOS transmission gate	7