

Code: 9A04401

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

SWITCHING THEORY & LOGIC DESIGN

(Common to EEE, EIE, E.Con.E, ECE & ECC)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain 7-bit Hamming code.
(b) A receiver with even parity Hamming code is received the data as 1101101. Determine the correct code.
- 2 (a) State and prove Boolean laws related to OR, AND, NOT gates.
(b) Determine the canonical sum of products form of the following function.
$$f(x,y,z) = z + (x' + y)(x + y')$$

(c) Realize XOR gate using minimum number of NAND gates.
- 3 (a) What are the advantages of Tabulation method over K-map?
(b) Simplify the following Boolean function using Tabulation method.
$$Y(A,B,C,D) = \sum(0,1,3,4,5,6,11,13,14,15)$$
- 4 (a) What is Encoder? Design decimal to BCD Encoder.
(b) Implement Full Subtractor using decoder and OR gates.
- 5 (a) Write short notes on combinational logic implementation using ROM.
(b) Derive a PLA programming table for the combinational circuit that squares a 3 bit number.
- 6 (a) What are asynchronous inputs in flip-flops? Explain its functionality.
(b) With neat sketch, explain JK master slave flip-flop.
- 7 (a) What are the capabilities and limitations of Finite State Machine?
(b) Find the equivalence partition and a corresponding reduced machine in standard form.

PS	NS,Z	
	X=0	X=1
A	E,0	C,0
B	C,0	A,0
C	B,0	G,0
D	G,0	A,0
E	F,0	B,0
F	E,0	D,0
G	D,0	G,0

- 8 (a) Explain the symbols used in an ASM chart with neat diagrams.
(b) Explain the important features of the ASM chart.
