Exam.Code:0921
Sub. Code: 33523

2124

B. E. (Information Technology)
Third Semester
ESC-301: Digital Electronics

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part. Assume missing data, if any, reasonably.

x-x-x

Q1. a) Write down advantages of Digital Signals. (5×2=10)
b) State the associative property of Boolean algebra.
c) Define Minterm & Maxterm.
d) Construct 2:1 multiplexer.
e) Differentiate between volatile and non-volatile memory.

Part A

Q2. a) Simplify the Boolean expression using K-MAP (5)
$F(A,B,C,D) = \sum m(1,2,3,8,9,10,11,14) + d(7,15)$
b) Obtain the SOP and POS expression for the function given below (5)
$F(A,B,C,D) = \sum m(0,1,2,5,8,9,10)$

Q3. a) Implement the following Boolean function using 8:1 multiplexer (5)
$F(A,B,C.D) = \Sigma m\ (0,1,2,5,7,8,9,14,15)$
b) Draw and explain the operation of J-K Flip-Flop. (5)

Q4. a) Explain synchronous and ripple counters compare their merits and demerits? (5)
b) Design a synchronous MOD-8 Counter using J-K filp-flop. (5)

Part B

Q5. a) Write down performance characteristics of D/A converters. (5)
b) Which parameters are important for the selection of a particular A/D converters? (5)

Q6. Explain the various characteristics of logic families in the detail. (10)

Q7. Write shorts notes on following: (4×2.5=10)
a) Static RAM & Dynamic RAM
b) PAL & PLA
c) FPGA
d) EPROM

x-x-x