Total No. of printed pages = 3

EI/It/Co-403/DE/4th Sem/2015/M

DIGITAL ELECTRONICS

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) Explain the simplification procedure of standard sum-of-products (SOP) form of Boolean expression using Karnaugh map. 8

   (b) Write the symbol, truth table and logic equation of NAND and NOR gate. 6

2. (a) Discuss the basic principle of adder circuits and draw the block diagram of a full adder circuit along with its truth table. 4+6=10

   (b) Draw the block diagram of a 8:1 digital multiplexer. 4

[Turn over

3. (a) Draw the block diagram of master-slave JK flip-flop and explain its basic principle using the truth table. 4+6=10

(b) Write the truth table and symbol of D-type and T-type flip-flop. 4

4. (a) Discuss the main points about different types of semiconductor memories. 8

(b) Draw and label the internal organization of a 16×4 memory chip. 6

5. (a) Draw the circuit diagram and explain the working principle of weighted-resistor Digital-to-Analog Converter (DAC) 4+6=10

(b) What do you understand by quantization error ? 4

6. (a) Write briefly about working principle of LED and LCD display devices. 4+4=8

(b) Draw a circuit connection for driving a 7-segment LED display. 6

7. Write short notes on any *two* : 2×7=14

(a) Parity generator / checker

(b) Counter

(c) Shift Register

(d) Analog-to-Digital Converter (ADC)

(e) TTL circuit.