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(February)

ELECTRONICS

(Honours)

(Digital Electronics—II)

[ELEC-501 (T)]

Marks : 56

Time : 3 hours

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

Answer **four** questions, taking **one** from each Unit

UNIT—I

1. (a) Discuss the operation of an RTL AND gate giving necessary circuit diagram.
- (b) What are half-adder and full-adder? Give their truth tables.
- (c) Find 2's complement of (i) 1001010 and (ii) 1101011. 6+4+4=14

2. (a) Implement the following logic using 8:1 multiplexer :
$$Y(A, B, C) = m(0, 2, 3, 5)$$
- (b) What are encoder and decoder?
- (c) Give the circuit diagram of a TTL NAND gate. 7+4+3=14

UNIT—II

3. (a) Discuss the operation of an R-S flip-flop and T flip-flop with the help of logic diagram.
- (b) Discuss the working of a mod-10 counter giving its logic diagram and timing waveform. 7+7=14
4. (a) Give few differences between latches and flip-flops.
- (b) Give the counting sequence of a 3-bit up-counter giving the timing waveform.
- (c) Discuss the operation of a buffer register. 4+4+6=14

(3)

UNIT—III

5. (a) Give the architecture of a diode matrix ROM and discuss its operation.
- (b) Discuss the working of a 3-bit ladder DAC. Give few advantages of ladder DAC as compared to a binary weighted DAC. 6+8=14
6. (a) Give few differences between RAM and ROM.
- (b) With necessary circuit diagram, discuss the working of a dual slope ADC. 5+9=14

UNIT—IV

7. (a) Write an assembly language program for 8085 to find the greatest number among five inputted numbers.
- (b) Briefly describe the following mnemonics giving examples :
- (i) STAX
- (ii) LDA
- (iii) SUB
- (iv) CMP 6+8=14

(4)

8. (a) Briefly describe the following :
- (i) Address bus in 8085
- (ii) Data bus in 8085
- (iii) Flags in 8085
- (b) Write an assembly language program for 8085 to add two 8-bit numbers stored in the memory. 6+8=14
