



**Module-5**

- 9 a. State and prove De-Morgan's theorem. (06 Marks)
- b. With a block diagram, explain the working of a 3-bit ripple counter. (06 Marks)
- c. What is a flip-flop? Explain the operation of master-slave JK flip-flop. (08 Marks)

**OR**

- 10 a. Design full adder circuit and implement it using basic gates. (08 Marks)
- b. Find :
- i)  $(1101\ 0111\ 0110\ 1010)_2 = (?)_{16}$
- ii)  $(EB986)_{16} = (?)_2$
- iii)  $(925.75)_{10} = (?)_8$ . (06 Marks)
- c. Explain the basic elements of communication system with block diagram. (06 Marks)

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