SY B.Sc. - II Sem. - III - B.Sc. 23132

Electronics - II (Digital Electronics - I)

Paper - II

P. Pages : 3

Time : Three Hours Max. Marks : 50

Note : 1. All questions are compulsory.
2. Each questions carry equal marks.
3. Draw neat diagram wherever necessay.
4. Use of log table / calculator is allowed.

1. Either :

a) What is a multiplexer ? What are the advantages of using multiplexer. Draw logic diagram for 4.1 multiplexer using logic gates and explain its working. **1+3+6**

OR

b) What is a demultiplexer ? State the uses of demultiplexer. Draw the logic diagram of 1.4 demultiplexer and explain its working. **1+3+6**

2. Either :

a) What do you mean by an encoder ? Explain decimal to BCD encoder using OR gate. Explain the working of 2 line to 4 line decoder. **10**

OR

b) What is half Adder ? Explain it with logic diagram and truth table. With circuit diagram explain the working of d's compliment Adder/ subtractor. **10**

3. Either :

a) Explain the construction and working of Rs flip-flop using NAND gates. State the drawbacks at Rs. flip-flop ? How are they removed in a D-flip-flop. **5+5**

OR

b) Explain needs of preset and clear facilities in a flip-flop. Draw logic diagram of a J-K master solve flip flop and explain its working. **3+7**

4. Either :

a) What is modulus of a counter ? With the help of a logic diagram explain the working of 3-bit synchronous counter. Draw its truth table and timing diagrams. **10**

OR

b) Differentiate between synchronous & asynchronous counters. Explain construction and working of decade counter. Draw its truth table and timing diagrams. **3+7**

5. a) Draw 1 : 8 Demux using 1 : 4 Demux.

b) Explain the working of full Adder using logic gates.

c) Define :

i) Propagation delay

ii) Setup time

iii) Hold time in flipflops.

d) Explain the working of 3-bit Johnson counter with suitable timing diagrams. **2½ X 4=10**

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