# USELT04 - Electronics Paper-II (Digital Integrated Circuit)

P. Pages : 2

**GUG/W/23/11579**

Time : Three Hours

*6560*

Max. Marks : 50

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Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and labelled diagram wherever necessary.

**Either:**

1. a) State the difference between Half adder and full adder? Write down the truth table for half adder and explain how it will implement using gates? **5+5**

**OR**

b) What is encoder? Explain the working of decimal to BCD encoder using logic gates. Draw the logic diagram of 2:1 mux using basic gates. **5+5**

**Either:**

2. a) Draw the block diagram of IC 555 timer and explain the function of each block. Draw the circuit diagram of astable multivibrator using IC – 555. **7+3**

**OR**

b) Draw the logic diagram of D-Flip flop and explain its working with truth table. What is race around condition in JK Flip Flop? **7+3**

**Either:**

3. a) What is counter? Explain the working of 4-bit binary counter with truth table. Also draw the timing diagram. **10**

**OR**

b) What is ring counter? Explain the working of Johnson counter with the help of timing diagram and truth table. **3+7**

**Either:**

4. a) What is register? Describe the construction and working of SISO shift register. Draw the timing diagram. **10**

**OR**

b) What is D/A converter? Explain the working of R-2R ladder D/A converter. **10**

**5.** Attempt **any ten** of the following: **1x10 =10**

a) What is SOP and POS?

b) Define Decoder?

c) What is K-Map?

d) State the use of preset and clear input.

e) Draw the logic diagram of RS Flip Flop using NAND gate.

f) What is an edge triggered Flip Flop?

g) State the application of counter.

h) What is modulus of counter?

i) What is Asynchronous counter?

j) Draw circuit of Sample and hold circuit.

k) State two drawbacks of single slope converter.

l) Define accuracy of A/D converter.

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