

III B. Tech II Semester Regular Examinations, July -2023**IC APPLICATIONS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) List out different Ideal and Practical Characteristics of Op-amp. [7M]
b) Draw the circuit diagram of Op-amp act as Integrator and explain its operation. [7M]
(OR)
2. a) Explain the operation of Op-amp along with block diagram in detail. [7M]
b) Discuss about any two general linear applications of Op-amp. [7M]

UNIT-II

3. a) Explain the operation of an astable multivibrator using 555 timer. Derive the expression for on and off state time periods. [7M]
b) Explain the application of PLL as a FSK demodulator. [7M]
(OR)
4. a) Draw and Explain the principles and description of individual blocks of PLL in detail. [7M]
b) Draw the block diagram of Astable operations using IC 555 and derive its time constant. [7M]

UNIT-III

5. a) Draw the block diagram of parallel Comparator type ADC and explain the operation of it. [7M]
b) Explain any two types of ADCs. [7M]
(OR)
6. a) Draw the circuit diagram of counter type ADC and explain its operation in detail. [7M]
b) Draw the block diagram of successive approximation ADC and explain its operation in detail. [7M]

UNIT-IV

7. a) Design BCD to gray code converter and realize using logic gates. [7M]
b) Design a 1X8 demultiplexer using two 1X4 demultiplexer. [7M]
(OR)
8. a) Design a excess-3 adder using 4-bit parallel binary adder and logic gates. [7M]
b) Write short notes on Magnitude Comparator in detail. [7M]

UNIT-V

9. a) Draw the schematic circuit of RS master slave flip flop. Give its truth table and justify the entries in the truth table. [7M]
b) Construct a JK flip flop using a D flip flop, a 2x1 multiplexer and an inverter. [7M]
(OR)
10. a) Draw the logic diagram of a SR latch using NOR gates. Explain its Operation using excitation table. [7M]
b) Convert D flip-flop into T and JK flip-flops. [7M]

