

(3 Hours)

[Total Marks: 80]

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1 Attempt any FOUR

[20]

- a Compare between SCR and DIAC
- b Draw and Explain low pass filter
- c What is an operational amplifier? Explain its characteristics
- d Differentiate between microprocessor and microcontroller
- e State and prove De-Morgan's theorems

2 a. Explain 180 degree mode of operation of inverter

[10]

b. Explain the architecture of MSP 430 microcontroller

[10]

3 a. Draw the circuit diagram of astable multivibrator and explain its operation.

[10]

b. Define and Explain specification parameter of digital logic family.

[10]

4 a. Explain the working principle of single phase bridge inverter circuit.

[10]

b. List various speed control methods of induction motor. Explain voltage control method with a suitable diagram.

[10]

5 a. What is a 555 timer? Write its applications and explain astable multivibrator with associated circuit diagram and waveforms.

[10]

b. Write difference between assembly programming and C programming also write the applications of microcontroller as Speed Measurement using Proximity Sensor.

[10]

6 a. Write a note on a) BLDC Motor b) Servo Motor

[10]

b. Draw and explain the working of multiplexer and de-multiplexer.

[10]