

3 Hours

[Max 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 Draw and explain IC 555 as Monostable Multivibrator.
  - b Explain the High pass active filter.
  - c Explain various features of logic family.
  - d Explain commutation and suggest with circuit diagram any natural commutation method of SCR.
  - e Compare De multiplexer and Multiplexer.
- 2 a Explain an ac to DC controlled converter supplying resistive load. Derive an expression for calculating output dc voltage. [10]
- b Describe instrumentation amplifier with labeled diagram. State its application area. [10]
- 3 a Explain the necessity of closed loop speed control in DC motor. [10]
- b Draw Differentiator ,integrator circuit with output voltage equation. [10]
- 4 a Explain need of digital to analogue conversion. How the ADC in MSP430 works? [10]
- b Explain three phase inverter operation with waveforms. [10]
- 5 a Draw and explain important sections of MSP 430 microcontroller. [10]
- b Compare digital circuits with Analog circuit. List Application of Each of them. [10]
- 6 a Describe speed torque characteristics of DC and AC motors. [10]
- b Compare microprocessor and microcontroller. [10]