

Instructions:

(3 Hours)

[Total marks: 80]

1. Question No: 1 is compulsory.
2. Answer any three from the remaining five questions.
3. Figures to the right indicate full marks.



- 1 Solve any four:- (20)
- a) Draw lamp dimmer circuit with associated waveforms.
 - b) List application area of inverter?
 - c) Draw Differentiator, integrator circuit with output voltage equation.
 - d) Explain various features of logic family.
 - e) Draw Architecture of Microcontroller MSP 430.
- 2
- a) Draw and Explain speed torque characteristics of dc motors. (7)
 - b) Explain three phase inverter operation with waveforms. (7)
 - c) Describe instrumentation amplifier with labelled diagram .State its application area. (6)
- 3
- a) Explain an ac to dc converter supplying resistive load. Derive equation for calculating dc voltage (7)
 - b) Explain procedure for selection of a motor for an application (7)
 - c) Explain in detail High pass active filter (6)
- 4
- a) Explain need of digital to analogue conversion. How the ADC in MSP430 works ? (7)
 - b) Compare digital circuits with Analog. list Application of Each of them. (7)
 - c) Explain necessity of closed loop speed control in DC motor. (6)
- 5
- a) Draw and explain important sections of MSP 430 microcontroller? (7)
 - b) what is MOSFET ?Explain its working and compare between MOSFET and IGBT? (7)
 - c) Draw and Explain IC 555 timer as Astable Multivibrator. (06)
- 6
- a) Explain commutation and suggest with circuit diagram any forced commutation method of SCR. (07)
 - b) Compare microprocessor and microcontroller. (07)
 - c) Compare Demultiplexer and Multiplexer (06)