(R-2019 C scheme) "Mechanical" Dec'2023

SE Sem IV

19/12/2023

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.

[20]

1 Attempt any FOUR

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]

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