UE20907 |

Exam.Code:0941
Sub. Code: 6725

2122
B.E. (Mechanical Engineering)
Fifth Semester
MEC-505: Mechatronics

Time allowed: 3 Hours Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

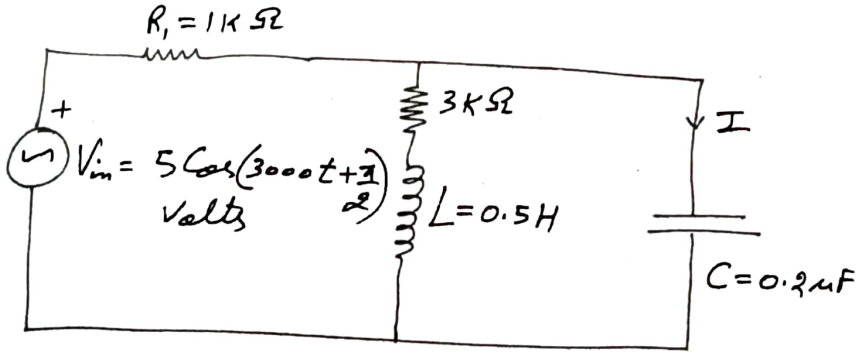
x-x-x

I. Write short notes on the following:-

a) Thevenin equivalent of the circuit
b) Norton equivalent of the circuit
c) Transformer
d) Ratchet & Pawl
e) Microcontroller (5x2)

UNIT - I

II. Find steady state current I through the capacitor in the following circuit.



(10)

III. Discuss current - voltage characteristics of a typical junction diode and Zener diode. Discuss how a Zener diode can be used to make voltage regulator circuit. (10)

IV. Explain BJT and FET. Draw and explain a simple transistor switch circuit. (10)

UNIT - II

V. Derive expression of gains for inverting amplifier, non-inverting amplifier and difference amplifiers. (10)

P.T.O.

VI. What is a PLC? What is 'Ondelay Timer' and what are different parameters in this timer? Write a ladder program that will start a pump after 12 seconds. (10)

VII. Discuss following:-

a) SR flip-flop

b) PIC16F84 microcontroller

c) Labview software

d) Control of DC motor

e) Timing diagram of OR gats (10)

x-x-x