School of Mechanical Engineering

Mechanical Engineering
ETE - Jun 2023

Time : 3 Hours **Marks : 50**

Sem VI - BTME3011 - Mechatronics

Your answer should be specific to the question asked
Draw neat labeled diagrams wherever necessary

1.	Distinguish between measurement system and control system.	K2	CO1	(2)
2.	Why Latching is needed to switch on the DC Motor?	K2	CO2	(2)
3.	What is the basic principle of thermocouples?	K2	CO1	(2)
4.	Explain the various building blocks of a Mechanical system.	K2	CO2	(2)
5.	What are the important functions of a Multiplexers.	K2	CO1	(2)
6.	What are the important applications of an operational amplifiers. Provide a detailed description of a inverting type of amplifier.	K3	CO5	(6)
7.	Explain in detail the working of a hall effect sensor. Also describe some important applications of such sensors in automobile industry.	K3	CO3	(5)
8.	Describe the key differences between brushed and brushless DC motors. Explain the working of Brushless permanent magnet D.C. motors.	K3	CO4	(5)
9.	Describe the process of Building up a model for an electrical system. Derive appropriate equations and draw appropriate diagram.	K4	CO5	(8)
10.	Present possible solution of developing a weighing machine/bathroom scale using load cell and a microprocessor/microcontroller system.	K4	CO4	(8)
11.	Draw the general architecture of Motorola Freescale M68HC11 microcontroller also explain its key features.	K4	CO6	(8)