INTERNATIONAL CENTRE FOR APPLIED SCIENCES MAHE, MANIPAL B.Sc. (Applied Sciences) in Engg. End – Semester Theory Examinations – Nov./ Dec. 2020 III SEMESTER - ELEMENTS OF MECHATRONICS SYSTEMS (IMET 231) (Branch: Mechatronics)

ime: 3 Hours	Date: 23 November 2020	Max. Marks: 50
 ✓ Answer ALL the que ✓ Missing data, if any, 	estions. may be suitably assumed	
Define transducer and s	sensor. What are the main differences betw	veen a sensor and a (3)
transducer?		(*)
With the help of a block	diagram explain the importance of actuate	ors in a (5)
mechatronic system.		(5)
Explain the construction and working of a tachogenerator.		(2)
With a neat block diagram, explain the functioning of a relay system.		em. (5)
Describe the working principle of linear and rotary solenoid with relevant diagrams.		elevant diagrams. (5)
With the help of a block diagram, explain the configuration of data acquisition system.		
State the objectives of d	ata acquisition system.	(5)
Draw the block diagram	of a CRO. Explain the importance of ever	ry part in the CRO
and its working principl	e.	(5)
Explain the construction	and working of an Inductive sensor with	a neat diagram.
List down three applicat	tions of the same	(5)
Explain the difference h	etween Single acting cylinder and Double	acting cylinder
with the help of suitable	diagrams	(3)
Eventsing the expression of	culagrams.	
Explain the operation of	a directional control valve.	(2)
What is a Lissajous pat	tern? Describe the types of input waves to	be given to a CRO
in order to produce a	Lissajous pattern of a line. Use suitable	graphs/ figures to (5)
support your answer.		
Explain how signal con	ditioning helps to control a mechatronic s	ystem with the help
of a schematic diagram.	List the various signal conditioning factors	s taken care for data (5)
acquisition and translati	on with examples.	(5)
	 ime: 3 Hours ✓ Answer ALL the quate ✓ Missing data, if any, Define transducer and stransducer? With the help of a block mechatronic system. Explain the construction With a neat block diagram Describe the working principal State the objectives of data the objectives of data the objectives of data the block diagram and its working principal Explain the construction List down three applicate Explain the difference be with the help of suitable Explain the difference of the suitable Explain the operation of the suitable 	ime: 3 Hours Date: 23 November 2020 Answer ALL the questions. Missing data, if any, may be suitably assumed Define transducer and sensor. What are the main differences between transducer? With the help of a block diagram explain the importance of actuate mechatronic system. Explain the construction and working of a tachogenerator. With a neat block diagram, explain the functioning of a relay system. Describe the working principle of linear and rotary solenoid with rewith the help of a block diagram, explain the configuration of data. State the objectives of data acquisition system. Draw the block diagram of a CRO. Explain the importance of ever and its working principle. Explain the construction and working of an Inductive sensor with List down three applications of the same. Explain the difference between Single acting cylinder and Double with the help of suitable diagrams. Explain the operation of a directional control valve. What is a Lissajous pattern? Describe the types of input waves to in order to produce a Lissajous pattern of a line. Use suitable support your answer. Explain how signal conditioning helps to control a mechatronic sy of a schematic diagram. List the various signal conditioning factors acquisition and translation with examples. <
