

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE  
(AUTONOMOUS)

IV B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH-2023  
MECHATRONICS  
(ME Branch)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

**PART-A**Answer **all** the questions in Part-A (5X2=10M)

Q.No.	Questions	Marks	CO	KL
1.	a) Explain the measurement system with block diagram	[2M]	1	2
	b) Differentiate Transducer & Sensor	[2M]	2	1
	c) How do you classify sensors	[2M]	3	1
	d) List applications of logic gate	[2M]	4	1
	e) Explain Stepper motor specifications	[2M]	5	2

**PART-B**Answer **One Question from each UNIT (5X10=50M)**

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	a) Define Mechatronics. List the applications of Mechatronics in day-to-day activities.	[5M]	1	1
	b) With the help of block diagram explain each element of closed loop controller.	[5M]	1	2
OR				
3.	a) What are the three phases of Mechatronics design process?	[5M]	1	1
	b) Write a brief note on Indicating instruments.	[5M]	1	1
UNIT-II				
4.	a) Differentiate between Microprocessor and Microcontroller.	[5M]	2	2
	b) Explain about the common types of registers available in microprocessor.	[5M]	2	2
OR				
5.	a) What is the function of pointer and index registers present in 8085 microprocessor?	[5M]	2	1
	b) What are the various criteria to choose the microcontroller?	[5M]	2	1
UNIT-III				
6.	a) With neat sketch explain architecture of PLC.	[5M]	3	1
	b) What are the selection criteria for PLC?	[5M]	3	1
OR				
7.	a) Explain the basics of ladder programming used in PLC's	[5M]	3	2
	b) Discuss how a PLC can be used to handle an analog input.	[5M]	3	2
UNIT-IV				
8.	a) Enumerate the diaphragm pressure gauge with a neat sketch.	[5M]	4	1
	b) Make a use of sketch to explain piezoelectric sensor.	[5M]	4	1
OR				

9.	a)	Explain with a help of neat sketch of temperature Bi-metallic strip.	[5M]	4	2
	b)	Illustrate liquid flow turbine meter with neat sketch.	[5M]	4	2
UNIT-V					
10.	a)	Explain with figure basic working of D.C motor.	[5M]	5	2
	b)	Explain the working principle of stepper motor in half step mode.	[5M]	5	2
OR					
11.		How is a traditional design of temperature control of a domestic central heating system	[10M]	5	2

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