APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY

08 PALAKKAD CLUSTER

Q. P. Code : IAR0821242D-I (Pages: 2)

Name: .....

Reg. No: .....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION JULY 2021

Branch: Mechanical Engineering **Specialization: Industrial Automation and Robotics**

08ME6342(D) Sensors, Microprocessors, Microcontrollers and their Applications

(Common to IAR)

Time: 2 hour 15 minutes **Max. Marks: 60**

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q. No.	Module 1	Marks
1. a	Write a short note on Inductive type transducers.	3
	Answer b or c	
b	Explain Through-Beam Detection Method used by photoelectric sensors.	6
c	Explain the significance of signal processing and signal conditioning.	6

Q. No.	Module 2	Marks
2. a	Explain briefly about Laser and its applications.	3
	Answer b or c	
b	What Is a Flexible Manufacturing System? Explain the Role of Sensors in FMS.	6
c	Elucidate the benefits of Radiofrequency identification.	6

Q. No.	Module 3	Marks
3. a	How an error free manufacturing system can be designed?	3

Answer b or c

b	'Manufacturing facilities can be designed by describing each manufacturing system—and the sensors and controls to be used in it—by a set of functional parameters'. Elucidate the statement with different parameters.	6
c	Explain about the major component of any effort to develop an intelligent and flexible automatic manufacturing system.	6

Module 4

Q. No.		Marks
4. a	How measurement at high temperature in manufacturing is developed using sensors?	3

Answer b or c

b	Explain about semiconductor absorption sensors.	6
c	Explain with example about noncontact sensors.	6

Module 5

Q. No.		Marks
5. a	Explain minimum/maximum mode configuration in 8086 microprocessor.	4

Answer b or c

b	Explain the general architecture of 8086 microprocessor.	8
c	Elucidate 8255 Programmable Peripheral Interface with neat block diagram.	8

Module 6

Q. No.		Marks
6. a	List the applications of microprocessors and microcontrollers.	4

Answer b or c

b	Sketch and explain the pin configuration of 8051 microcontroller.	8
c	Explain various addressing modes of 8051.	8