Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: MR482

Course Name: Mechatronics

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1	Demystify Mechatronics?	(5)
2	Differentiate between open loop and closed loop control system?	(5)
3	Explain the advantages of hydrodynamic bearing over antifriction bearing	(5)
4	Write short note on adaptive machine Controllers	(5)
5	Write short note on proximity sensing in robotic application and how it helpful for robotic movements	(5)
6	Mention the stages involved in the design process of a mechatronics system	(5)
7	Illustrate basic block diagram of engine management systems & list its major components	(5)
8	With a neat sketch design a closed loop systems for heating a room	(5)

PART B

Answer any three full questions, each carries 10 marks.

9	a)	Explain the evolution of Mechatronics?	(4)
	b)	With neat sketch explain any one mechatronics system used in our daily life?	(6)
10	a)	With neat sketch explain the working of piezo electric crystal?	(7)
	b)	How a piezo electric cystal can be converted to a piezo electric sensor? Explain in detail?	(3)
11	a)	Define Preloading? Explain any two methods of preloading	(10)
12	a)	Explain PID controller.	(5)
	b)	Explain any one of the PID controller tuning technique	(5)
13	a)	Explain the architecture of programmable logic controller	(10)

PART C

Answer any two full questions, each carries 15 marks.

14	a)	With neat sketch explain the significance, characteristics of Modern CNC over conventional NC machines.	(15)
15	a)	With a suitable block diagram discuss the working of robot	(6)
	b)	Explain the working tactile sensing in robotics	(6)
	c)	Discuss about the limitations of robots	(3)
16	a)	Compare artificial neural networks with biological neural networks	(10)
	b)	List key features of processing elements of ANN are suggested by the properties of biological neurons	(5)
17	a)	Investigate the working of pick and place robot with a suitable block diagram	(15)

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