Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree Examination July 2021 (2019 Scheme)

Course Code: MRT204
Course Name: SENSORS AND ACTUATORS

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		List any three applications of magnetic sensors	3
2		State about the three major barriers to the expanded use of neodymium magnets in automobiles	3
3		Define sensitivity	3
4		Mention any three requirements of a magnetic speed sensors	3
5		Draw the timing diagram for a PWM voltage source	3
6		Write any three applications of solenoid actuators	3
7		Define rotary actuators and list its types	3
8		Distinguish between disk type and cylindrical type rotary actuators	3
9		Give the significance of Tachogenerators	3
10		Write short notes on controls in NC machines	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11		Explain about two classification of magnetic materials based on coercivity. Also mention about their applications	14
12	a)	Discuss about linear solenoids working principle and explain about its types	7
	b)	Summarize the need and benefits of coating technology	7

Module -2

13		Illustrate in detail about the solid state sensors and its design.	14
14		Suggest an appropriate technique for sensing the wheel speed with magnetic sensors for automotive application	14

Module -3

15		Discuss in detail the disk and plunger type configurations of solenoid actuators	14

16	a)	Explain the long stroke solenoid fuel pump	7
	b)	Describe about the gasoline injectors in brief	7

Module -4

17		Explain the application of disk type rotary actuators in detail	14
18		Illustrate in detail about the construction and working of cylindrical type rotary actuator	14

Module -5

19		Explain about different fluidic logic gates and flip flop with a note on its applications	14
20		Demonstrate the construction and working cone jet proximity sensor	14

***