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Pages: 2

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree (S,FE) Examination May 2024 (2015 Scheme)



Course Code: MR202

Course Name: SENSORS AND ACTUATORS (MC)

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions. Each question carries 5 marks*

- |   |   |   |
|---|---|---|
| 1 | Explain Gear pump with neat sketch  | 5 |
| 2 | Explain about lobe pump   | 5 |
| 3 | Draw the symbol of:<br>1. Shuttle Valve 2. Pressure regulator             | 5 |
| 4 | Draw the constructional diagram of a typical cylinder and mark the parts. | 5 |
| 5 | Explain the working of the flapper nozzle                                 | 5 |
| 6 | Explain the working of fail down actuators                                | 5 |
| 7 | Demonstrate the working of Tachogenerators                                | 5 |
| 8 | Describe the different fluidic logic gates                                | 5 |

**PART B**

*Answer any three questions. Each question carries 10 marks*

- |    |  |    |
|----|--|----|
| 9  | With the help of neat diagram explain about air receiver   | 10 |
| 10 | Evaluate adsorption dryer with a neat sketch   | 10 |
| 11 | Describe the construction of a 3/2 & 4/2 poppet valve with a neat sketch   | 10 |
| 12 | List out any 3 application of check valves   | 10 |
| 13 | Describe speed control techniques listed below with neat diagrams<br>a) Meter in speed control<br>b) Meter out speed control | 10 |

**PART C**

*Answer any two questions. Each question carries 15 marks*

- |    |  |    |
|----|--|----|
| 14 | Explain about Proportional plus integral (P + I) controller with block Diagram, construction diagram and equation. | 15 |
| 15 | With neat figure write short notes on:<br>a) Resolver b) Inductosyn  | 15 |

16	Explain 1. Volume booster.2. PID controller	15
17	a) Evaluate the Working of Stepping Motor	8
	b) Explain the different types of fluid sensors	7