

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)  
**End Semester Examinations- JUNE-JULY 2019**  
**POST GRADUATE DIPLOMA IN MARINE ENGINEERING (PGDME)**  
**SEMESTER –I**  
**Marine Control & Automation**  
**(PD11T3104)**

---

Date:27.06.2019

Maximum Marks:100

Time: 3 Hours

Pass Marks:50

---

**PART-A**

**1. Answer all questions. (6 x 5 = 30 Marks )**

- (a) Define Error and Offset
- (b) What are the 3 performance requirements of a control system?
- (c) Can we use Derivative Control alone? Justify the answer.
- (d) Compare Servo Control systems and Regulatory Control systems
- (e) What is importance of 4 to 20 mA current signal?
- (f) What the various sensors used for flow measurement?

**PART-B**

**Answer any 5 questions ( 5 x 14 = 70 Marks )**

- 2. (a) Compare Open loop and Closed loop systems. (7)  
(b) Compare Pneumatic and Electrical signal transmission (7)
- 3. (a) Explain Split-Range Control (10)  
(b) What is Distance velocity Lag? Explain with an example. (4)
- 4. (a) Explain Bourden Tube Gauge with a neat diagram (10)  
(b) Explain Nozzle Flapper system as a transducer (4)
- 5. (a) Explain Pneumatic Actuators (10)  
(b) What are the benefits of using a Valve Positioner? (4)
- 6. Explain Pneumatic PID Controller (14)
- 7. Explain the essential requirements of UMS operation. (14)
- 8. Explain 3 element type Boiler level control. (14)
- 9. Explain Engine (jacket) Cooling system. (14)

\*\*\*\*