

INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

END SEMESTER EXAMINATION December 2017

Programme: B. Tech (Marine Engineering)

Semester: IV

Subject Name: Practical Marine Automation

Subject Code: UG11T2407

Date: 27.12.2017

Maximum Marks: 100

Time: 3HRS

Pass Marks: 50

Part A (3×10 = 30 Marks)

Compulsory Questions

- 1) (a) What is measuring lag?
- (b) Explain P-Band.
- (c) Define offset, set value.
- (d) What is negative feedback?
- (e) What is called Photovoltaic cell?
- (f) Define On-Off control system
- (g) Define Force Balance Mechanism.
- (h) How do Synchros work?
- (i) Write a short note on Thermistor.
- (j) What do you mean by transducer?

Part B (5×14 = 70 Marks)

Answer Any Five of the following

2. (a) Explain with sketch the principle of operation of Nozzle flapper system. 7
- (b) Describe with sketch Cascade Control system used in marine system. 7
3. (a) Explain PID Control system and characteristics. 6
- (b) Describe with sketch Main Engine Fuel Oil Viscosity Controller. 8

4. (a) Explain the working principle of Pneumatic Relay with neat sketch.	7
(b) How Variable Inductance Transducer works?	7
5. (a) Explain with sketch Pneumatic Diaphragm Actuator with Positioner?	7
(b) Describe Electro Hydraulic Actuator.	7
6. (a) Draw and explain the Lubricating Oil temperature control system.	7
(b) Describe with sketch Boiler Two Element Water Level Controller.	7
7. (a) Explain Square Root Extractor?	8
(b) How Drag Cup Tachometer works.	6
8. (a) What is Dead Band?	4
(b) What are the mandatory requirements of Automatic Control System for UMS Vessel, explain it?	10