

INDIAN MARITIME UNIVERSITY
(A Central University, Govt.of India)

May/June 2015 End Semester Examinations

SEMESTER – IV, B.TECH (MARINE ENGINEERING)

PRACTICAL MARINE AUTOMATION (T 2407 / T 1407)

Date:25.06.2015

Time:-3 Hrs

Max.Marks:100

Pass Marks:50

PART – A
(Compulsory Questions)

(3 x10 = 30 Marks)

1. a) Define On-Off control system.
- b) Explain P-Band.
- c) Explain Burdon Tube.
- d) What is negative feedback?
- e) What is RTD (resistance temperature detector)?
- f) What is turndown ratio?
- g) Define Force Balance Mechanism.
- h) How do Synchros work?
- i) Write a short note on Thermistor.
- j) What is Liquid Glass Thermometer?

PART – B
(Answer any five of the following)

(5 x14 = 70 Marks)

2. a) Explain Open Loop and Closed Loop control system with their advantages and disadvantages. **(6)**
- b) Describe with sketch Cascade Control system used in marine system. **(8)**

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) Why Single, Two and Three Elements system are used in Boiler Water Level Controller? (6)
- b) Describe with sketch Boiler Two Element Water Level Controller. (8)
7. a) Explain Square Root Extractor? (8)
- b) How Drag Cup Tachometer works. (6)
8. a) With sketch describe principle and operation of Oil Mist Detector in M/E Crank Case. (7)
- b) Explain with sketch Dionic Gauge (Salinometer). (7)
9. a) What is Automatic Control System? (4)
- b) What are the mandatory requirements of Automatic Control System for UMS Vessel, explain it? (10)
