

# INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examinations- June-July 2019

## Semester – IV

### B.Tech (Marine Engineering)

### Applied Marine Control and Automation (UG11T3407)

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Date: 08-07-2019

Maximum Marks: 100

Time: 3 Hrs

Pass Marks: 50

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#### **Part A (10 × 3 = 30 Marks)** **All Questions are compulsory**

1. (a) Define on – off control system.
- (b) Define set point.
- (c) What is called reset control?
- (d) What are the advantages of pneumatic controllers?
- (e) Where are differential pressure gauges are used?
- (f) State the principle of thermocouple.
- (g) Explain RTD.
- (h) Define distance velocity lag.
- (i) Write reason for using current to pressure converter and why selecting the 4 – 20 mA current loop.
- (j) Define electrical zero in synchro's.

#### **Part B (5 × 14 = 70 Marks)** **Answer any five of the following**

2. (a) Compare open loop and closed loop control systems with example. (7)
- (b) Describe split range control system with neat sketch. (7)
3. (a) Define Pneumatic relay and explain its working principle. (7)
- (b) Describe position balance proportional controller. (7)
4. (a) Discuss electro – pneumatic valve positioner with neat sketch. (7)
- (b) Draw and discuss the operation of electric rotatory valve operator. (7)
5. (a) Explain square root extractor. Write the down the applications. (7)
- (b) Sketch a purge or Bubbler system which could be used to measure the level in tank. Discuss its operation. (7)

6. (a) How electrical tachometer works. (7)
- (b) What is the importance of salinity indicator? Discuss its operation with neat sketch. (7)
7. (a) Explain current to pressure (IP) converter. (7)
- (b) Draw and discuss nozzle – flopper three – term controller. (7)
8. (a) Draw and explain fuel oil viscosity control. (7)
- (b) Draw and explain jacket cooling water control. (7)