

**Indian Maritime University**  
(A Central University, Govt. Of India)  
**End Semester Examination Dec-2019/Jan-2020**  
**B. Tech(Marine Engineering)**  
Semester -IV  
**Practical Marine Automation**  
**(UG11T1407/UG11T2407)**

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Date: 13-01-2020

Max Marks: **70**

Time: 3 Hrs

Pass Marks: **35**

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**Part – A (compulsory)**

**Answer the following (10x2=20 Marks)**

1. What are the advantages of Pneumatic controllers?
2. Define modulating control system.
3. Explain reset action.
4. How do Synchros work?
5. Explain working principle of Thermocouple.
6. List four flow measuring devices.
7. What is the difference between sensor, transducer and transmitter?
8. List various Alarms and Trip for a marine boiler.
9. What are the functional elements of Automatic Control System?
10. What do you understand by cascade control system?

**Part – B**

**Answer any 5 out of 7 questions (5 x 10= 50 marks)**

11. (a) Explain Open Loop and Closed Loop control system with their advantages and disadvantages. (7)  
(b) Explain the working principle of open loop type flapper nozzle system. (3)
12. (a) What do you mean by Split Range Control System. (3)  
(b) Explain ME Jacket Cooling Water Temperature Control System with split range control. (7)
13. (a) What is the role of Rate or Derivative Control? (3)  
(b) Describe the working of Pneumatic PID controller with proper diagram. (7)
14. (a) Describe with sketch the working of Salinometer. (5)  
(b) Sketch and explain Pneumatic Bubbler Tank Level measuring system. (5)
15. (a) List 6 different temperature measuring devices. (3)  
(b) Explain the construction and working of LVDT. (7)
16. Discuss the requirements of an UMS operation of modern ships? (10)
17. (a) What are valve Positioners? What are the main advantages of Positioners? (3)  
(b) Draw a neat sketch of diaphragm actuator with valve positioner and explain its working. (7)

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