

**Eighth Semester B.E. Degree Examination, June/July 2017**  
**Marine Automation**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting  
at least TWO questions from each part.**

**PART – A**

- 1 a. Briefly explain different types of photo-electric sensor. (12 Marks)  
b. Explain the construction and working of LVDT. (08 Marks)
- 2 a. Explain construction and working principle of following : (15 Marks)  
(i) Orifice meter (ii) Target flow meter (iii) Manometer  
b. Write the difference between photo electric cells and photo voltaic cells. (05 Marks)
- 3 a. Explain measurement of torque using strain gauges. (10 Marks)  
b. Explain resistance temperature detectors. (10 Marks)
- 4 a. Explain the working principle and characteristics of nozzle flapper. (12 Marks)  
b. Write a note on signal conditioning (08 Marks)

**PART – B**

- 5 a. Explain ON-OFF control system. (10 Marks)  
b. Write the difference between open loop and closed loop control system. (10 Marks)
- 6 a. Explain stacked type control with circuit diagram. (10 Marks)  
b. Define relay and write a brief note on its types. (10 Marks)
- 7 a. Explain Piston actuators with its application. (08 Marks)  
b. Sketch and explain a pneumatic operated diaphragm valve actuator with positioned. (12 Marks)
- 8 a. Explain with a block diagram, the feed water circulation system. (10 Marks)  
b. Explain lubricating oil temperature control system. (10 Marks)

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