Marine Automation VTU CBCS Question Paper Set 2018

USN

10MR841

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 :
(i) Orifice meter (ii) Target flow meter (iii) Manometer **(15 Marks)**
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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PART – A

1 a. Mention and explain any five characteristics of transducers. **(10 Marks)**

b. With a neat sketch explain the working of hall effect sensor. **(10 Marks)**

2 a. With a neat diagram explain photoelectric cell photo conductive cell and photovoltaic cell. **(12 Marks)**

b. With a neat sketch explain the working of viscosity sensor. **(08 Marks)**

3 a. With a neat diagram explain the working of variable capacitance pressure transducer. **(10 Marks)**

b. With a neat diagram explain bimetallic temperatures sensor. **(10 Marks)**

4 a. Explain the working current to voltage and voltage to current converters. **(08 Marks)**

b. Name the different type of filters and explain any two them. **(12 Marks)**

PART – B

5 a. With an example and a neat block diagram explain open loop and closed loop control system. **(12 Marks)**

b. Explain the P + I + D (proportional, Integral and derivative) controller with system response graph. **(08 Marks)**

6 a. What are logic blocks? Explain AND, OR and NOT functions. **(08 Marks)**

b. With a neat diagram explain how a control valve operates with the signal from P + I + D controller. **(12 Marks)**

7 a. Write a short note on piston actuators. **(08 Marks)**

b. With a neat sketch explain diaphragm actuators and mention any four points where positioners are necessary. **(12 Marks)**

8 a. With a neat diagram explain the fuel oil viscosity control. **(12 Marks)**

b. Explain the working of a feed water control of boiler. **(08 Marks)**

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