

B.E./B.Tech. Degree Examination, September 2020
Semester - VIII
MR16803 Marine Control Engineering and Automation
(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions**PART A - (8 X 2 = 16 marks)**

1. The functional element for an Automatic control system
 - a. measuring element
 - b. error detection element
 - c. control element
 - d. all of the above
2. The types of self balancing arrangement in a Pneumatic transmitter are
 - a. Position balance
 - b. Force Balance
 - c. Moment Balance
 - d. all of the above
3. Ratio controller is used in
 - a. Chemical plant
 - b. Fuel distillation plant
 - c. Food industry
 - d. all of the above
4. Factors that affect the operation of Pneumatic Control system are
 - a. Air pressure
 - b. seal arrangement
 - c. none of the above
 - d. A & B
5. What is meant by deviation in a control system?
6. Onboard the ship name the Controller equipment that employs nozzle-flapper arrangement.
7. Name some of the methods for controlling the speed of DC motor.
8. State the factors that affect the operation of Hydraulic controller system

PART B - (4 X16 = 64 marks)

09. (a) (i) With a classic example explain the working of Open loop control system. **(10)**
(ii) Compare the feedback and feed forward in a Control system. **(6)**
(OR)
- (b) Explain working of Proportional, Integral, derivative controller for any system onboard ship with a neat diagram. **(16)**
10. (a) Explain with neat diagram working of Position-Balance proportional controller. **(16)**
(OR)
- (b) With a simple diagram explain the working of any Closed loop hydraulic system onboard the ship. **(16)**
11. (a) With a simple diagram explain the working of Ward Leonard electric steering gear system onboard the ship. **(16)**
(OR)
- (b) Explain with a classic example working of Master slave controller of a system onboard the ship. **(16)**
12. (a) With a neat diagram explain the working of Electric actuator used in transmission system onboard ship. **(16)**
(OR)
- (b) With a simple sketch explain the working of Pneumatic Actuator used in transmission system onboard the ship. **(16)**