INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)

May/June 2016 End Semester Examinations

SEMESTER – VI, B.Sc (NAUTICAL SCIENCE)

MARINE ENGINEERING AUTOMATION & CONTROL SYSTEMS-VI
(UG21T2606)

Date: **Max. Marks: 70**
Time: 3 Hrs **Pass Marks: 35**

Answer any SEVEN of the following. All Questions carry equal marks. (7 x 10 = 70 Marks)

1. Draw a Neat Sketch and Explain the Construction and Working of a Variable Delivery Pump (Hele-Shaw Pump) (10)

2. With a Simple Sketch Explain the Safematic Design (Single Failure Criteria-Fail Safe) of a 4 Ram Electro Hydraulic Steering Gear System (10)

3. Describe the working of a Tank Stabiliser (Flume Stabiliser) with the help a simple sketch (10)

4. Explain the Working of an Automatic Constant – Tension Mooring Winch with the aid of a Simple Sketch (10)

5. (a) Explain SL Valve, SDNR Valve & Free Lift Non-Return Valve (6)
(b) Draw a Simple Sketch of a Centrifugal Pump and Explain its Working (4)

6. (a) With a Simple Line Diagram Explain the Cargo Pumping arrangement of an Oil Tanker (6)

(b) Draw & Label the Bilge and Ballast System of a Dry Cargo Vessel (4)

7. What are the Periodic Safety Routines that needs to be carried out on Alarms, Safety and Emergency Equipments? Explain. (10)

8 (a) What are the Precautions that should be taken before and during Heavy / Rough weather for a Ship's Steering (6)

(b) What are the Duties for which Reciprocating Piston Pumps are Used (4)

9. (a) Describe a Single Duct Air Conditioning System with a Simple Sketch (6)
(b) Give the Causes for the following Troubles in a Domestic Refrigeration System: (4)
(i) Liquid Refrigerant is present in the Evaporating Coil but it is not Vapourising. i.e. Liquid Refrigerant is not taking the Heat from the Cargo
(ii) There is no Liquid Refrigerant in the Evaporator Coil

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