

Indian Maritime University

(A Central University, Govt of India)

B Sc (Nautical Science)

June 2018 End Semester Examinations

Semester-IV

UG21T3405 - Marine Engineering Automation & Control Systems - II

Duration:3 Hrs

Max Marks:70 Marks

Date: 13.06.2018

Pass Marks:35 Marks

Note: Question No.1 is compulsory.

Answer any 6 Questions from remaining 8 Questions (each of 10 marks).

Scientific Calculator is permitted if required.

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1. a) What is PV diagram of an IC engine? (2 Marks)
b) Define Apparent Slip (2 Marks)
c) How does Scavenge Fire occur? (2 Marks)
d) What is CPP? (2 Marks)
e) Name the various equipment used to evaluate the atmosphere of a tank/enclosed space (2 Marks)
 2. a) Mention the classifications of various types of engines (5 Marks)
b) With neat sketches explain the working of a four stroke diesel engine (5 marks)
 3. a) Write the differences between an Impulse Turbine and a Reaction Turbine (5 Marks)
b) With respect to propeller, explain the following terms
(i) Pitch (2½ Marks)
(ii) Real Slip (2½ Marks)
 4. a) What are the regulations governing the discharge of machinery space bilges from ship? (5 Marks)
b) With the help of a line diagram explain the Jacket Cooling Water System of a Main Engine (5 Marks)

5. a) Explain w.r.t. to Operation of IC Engine as Main Propulsion Engine, Warming Up, Manoeuvring – Starting & Reversing and Full Power Running (5 Marks)

b) Explain the following w.r.t. IC Engines:

(i) Power to Weight Ratio (2½ Marks)

(ii) Specific Fuel Oil Consumption (2½ Marks)

6. a) Explain Open Loop and Closed Loop Control System (5 Marks)

b) With the aid of a diagram explain the operation of a Bow Thruster (5 Marks)

7. a) With a simple diagram explain the inert gas system for cargo on an Oil Tanker (5 Marks)

b) Draw and Explain the Working of a 2 Ram Electro Hydraulic Steering Gear (5 Marks)

8. a) List out the Rules and Regulations pertaining to Steering Gears (5 Marks)

b) Explain the various Cocks and Valves used on board ships (5 Marks)

9. a) Draw a Simple Sketch of a Centrifugal Pump and Explain its Working (5 Marks)

b) Describe a Single Duct Air Conditioning System with a Simple Sketch (5 Marks)