

INDIAN MARITIME UNIVERSITY
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(A Central University Government of India)
End Semester Examination June-July 2019
B Sc (Nautical Science)
Semester IV
Marine Engineering, Automation & Control System Paper-II
UG21T3405

Date : 03.07.2019
Duration : 3 Hrs

Max Marks : 70 Marks
Pass Mark : 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) Mention the classification of various types of engines (2 Marks)
b) Define Pitch (2 Marks)
c) How Scavenge Fire occurs? (2 Marks)
d) What is CPP? (2 Marks)
e) Name the various types of pumps (2 Marks)

 2. a) Draw and explain the PV diagram of a 4-stroke diesel engine (5 Marks)

b) With neat sketches explain the working of a 2-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) Apparent Slip (2½ Marks)
(ii) Real Slip (2½ Marks)

 4. a) List out the various types of deck machinery onboard ship along with safety features incorporated in them (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 the purpose of turbocharger and also describe the need to control RPM whilst carrying out turbocharger washing (5 Marks)

- b) Explain the following w.r.t. IC Engines:
- (i) Power to Weight Ratio (2 Marks)
 - (ii) Specific Fuel Oil Consumption (3 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 oil cargo (5 Marks)
- b) Draw and Explain the Working of a 2 Ram Electro Hydraulic Steering Gear (5 Marks)
8. a) Draw and explain the working of variable delivery pump (Heleshaw Pump) (5 Marks)
- b) Explain the working of an Automatic constant tension Mooring winch with aid of s simple diagram (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)