

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
END SEMESTER EXAMINATIONS – DECEMBER 2019
B.Sc. (Nautical Science)
Semester: IV
UG21T2412

Marine Engineering, Automation and Control System Paper IV

Date: 24-12-2019

Max Marks: 70

Time: 3 Hours

Pass Marks: 35

Note: Question No.1 is compulsory.

Answer any 6 Questions from remaining 8 Questions (each of 10 marks).
Scientific Calculator is permitted if required.

1. a) Mention the classifications of various types of engines
b) Name the various components/parts of a 4 stroke diesel engine
c) Name the different types of fuels
d) Name the different types of turbines
e) Name the different types of Propellers (5x2=10 Marks)

2. a) With neat sketches explain the working of a 4-stroke diesel engine. (5 Marks)
b) Draw and explain the PV diagram of a 2-stroke diesel engine. (5 Marks)

3. 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)

4. a) Name the groups into which chemical cargoes are divided. (5 Marks)
b) Name the differences between a 2-stroke and a 4-stroke diesel engine. (5 Marks)

5. a) Explain the following terms with respect to chemical cargoes
(i) Reactivity (2½ Marks)
(ii) Corrosivity (2½ Marks)
b) Explain the following terms with respect to chemical cargoes
(i) Flammability (2½ Marks)
(ii) Toxicity (2½ Marks)

6. a) Explain High Pressure w.r.t. Chemical Cargoes (5 Marks)
b) What is ICS Cargo Data Sheet and what are the details given in it (5 Marks)

7. a) Draw and label the fuel oil line from storage tank to main engine fuel pump. (5 Marks)
b) With respect to propeller, explain the following terms
(i) Pitch / Blade Angle (2½ Marks)
(ii) Apparent Slip (2½ Marks)

8. a) Explain the procedure for warming through a Steam Turbine used as a prime mover for Cargo Pump (5 Marks)
- b) List out the various types of deck machinery onboard ship along with safety features incorporated in them (5 Marks)
9. a) What are the regulations governing the discharge of machinery space bilges from ship? (5 Marks)
- b) What are the regulations governing the disposal of sewage from ships? (5 Marks)
