

Indian Maritime University

(A Central University, Govt of India)

May-June 2018 End Semester Examinations

B. Tech (Marine Engineering)

Semester-VI

MARINE AUXILIARY MACHINES-II (UG11T2604/1604)

Date: 15.06.2018

Time: 3 Hrs

Max Marks: 100 Marks

Pass Marks: 50 Marks

PART – A

Marks: 10 x 3 =30

(All Questions are compulsory)

1. a. Name the different refrigeration systems/methods
- b. What are the desirable properties of a good refrigerant
- c. Name the components in a vapour compression refrigeration system
- d. How purging of air from a refrigeration system is carried out?
- e. Why secondary refrigerant is used in cargo holds refrigeration system?
- f. Explain the ventilation system of a CO₂ room
- g. What is Noise? How is noise expressed?
- h. What is Residual Fuel Oil (or) Heavy Fuel Oil?
- i. What are the properties of air that are altered / modified by an air conditioning system?
- j. Name some of the desirable properties / characteristics of a good lubricant

Part – B

Marks: 5 x 14 =70

(Answer any 5 of the following 7 Questions)

2. (a) Sketch and describe the working of a refrigeration system
(10 Marks)
- (b) Explain the principle of Refrigeration
(4 Marks)
3. (a) Sketch and describe a Thermostatic Expansion Valve in a refrigeration system
(8 Marks)
- (b) Explain the functions of the following safety devices fitted on a refrigeration system:
 - i. High Pressure [HP] Cut Out
 - ii. Relief Valves
 - iii. Oil Differential Cut Out
 - iv. Low Pressure [LP] Cut Off

(6 Marks)

4. (a) Give the causes for the following troubles in a refrigeration system:
- i. Compressor short cycles on low pressure control
 - ii. Discharge pressure too high
 - iii. Suction pressure too high & compressor crankcase sweating
(6 Marks)
- (b) Draw & explain the brine system for refrigerated cargo holds
(8 Marks)
5. (a) Describe an single duct air condition system with a simple sketch
(8 Marks)
- (b) What are the various modes of vibration in a ship? What are the sources of vibrations.
(6 Marks)
6. (a) What are the sources of noise in a ship and describe the techniques to suppress it?
(8 Marks)
- (b) What is critical speed of running engine? How the critical speed can lead to engine failure? What precaution needs to be taken if engine is on critical speed?
(6 Marks)
7. (a) Explain the treatment of fuel carried out for its effective combustion in Marine I.C Engines.
(8 Marks)
- (b) List the additives in a crankcase L.O of a 4 stroke Marine I.C. Engine and explain why they are used
(6 Marks)
8. (a) What is hydrodynamic lubrication? How it is generated in journal bearing? What are the factors for which the bearings can fail?
(10 Marks)
- (b) What are the details that are given in a L.O analysis reports?
(4 Marks)