

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

May/ June 2017 End Semester Examinations
B.Tech. (Marine Engineering) Sixth Semester
(AY 2009-2014 batches)

Marine Auxiliary Machines - II (UG11T1604/ UG11T2604)

Date : 19.06.2017

Maximum Marks: 100

Time: 3 Hrs

Pass Marks : 50

PART -A

Marks: 10x3=30

(All questions are Compulsory)

1. (a) What are the principal components of a refrigeration plant using vapor compression cycle?
- (b) What is cryogenic technology of refrigeration? Where it is used?
- (c) What is the use of oil separator in a refrigeration system?
- (d) Considering the cargo refrigeration system explain
Controlled atmosphere?
- (e) What is the necessity of Air conditioning system on board?
- (f) What is the regulatory requirement of Cargo Pump room ventilation system?
- (g) What is De-tuner? Where it is used?
- (h) What is the function of mixing column in main engine F. O service system.
- (i) What are the merits and demerits of emulsified fuel?
- (j) How frequently the Lubricating oil analysis (by shore base Laboratory) being carried out on board. What are the impacts of this test?

PART -B

Marks: 5X14 =70

(Answer Any 5 of the following)

2. (a) Sketch and describe a thermostatic expansion V/V (TEV) fitted in a domestic refrigeration system. (8 Marks)
- (b) Explain the six desirable properties of a refrigerant that could be suitable for modern refrigeration plant (6 Marks)
3. Give possible cause and remedy for the following trouble in an refrigeration plant:-
 - (a) Air in the system (4 Marks)
 - (b) Moisture in the system. (3 Marks)
 - (c) Undercharge. (4 Marks)
 - (d) Frost on the evaporator coil. (3 Marks)
4. Sketch and describe a Zone control Air Conditioning system. With the aid of psychometric chart, explain how temperature and humidity of air is maintained within comfort zone? (9+5 Marks)
5. Explain the CO₂ room ventilation system. Describe the necessity of ships engine room ventilation and explain the air distribution arrangement in E/R with the aid of suitable sketch. (5+9 Marks)
6. Discuss in detail the source of noise and the suppression technic adopted on board. What are the IMO standard of maximum noise level on board at Workshop, Kitchen, Control room, Office, Dining room and sleeping area? (10+4 Marks)
7. (a) Discuss seven important property of a lubricating oil ? (7 Marks)
- (b) Write short notes on:- (7 Marks)

Hydro dynamic lubrication,
Boundary lubrication and
Elasto-hydrodynamic lubrication.

8. (a) What are the causes of microbiological degradation of fuel oil. How contaminated oil is freed from microbes on board. (4 Marks)

(b) Explain treatment methods adopted for residual fuels on board?

(10 Marks)
