

Indian Maritime University
(A Central University, Govt. Of India)
End Semester Examination Dec-2019/Jan-2020
B. Tech(Marine Engineering)
Semester -VI
Marine Auxiliary Machines – II
UG11T1604/2604

Date: 07-01-2020
Time: 3 Hrs

Max Marks: **70**
Pass Marks: **35**

Part – A (compulsory)

Answer the following (10x2=20 Marks)

- (1) What are the components of a simple vapor compression refrigeration system ? (2)
- (2) What is purging of air from refrigeration system and normally from which component it is done ? (2)
- (3) What does a lubricant do? (2)
- (4) What is the effect of humidity on human comfort in a Air-conditioning system? (2)
- (5) What is the effect of sound on human ? (2)
- (6) What are noise limits (as per IMO guide line) at engine room workshop , kitchen , machinery control room ,offices , dining room and sleeping area. (2)
- (7) State the different types of bearings used for the marine machinery ?(2)
- (8) What is viscosity index? How does it plays an important role in lubrication? (2)
- (9) What is cracking of mineral crude oil ? (2)
- (10) What is Cryogenic technology? Where it is used? (2)

Part – B

Answer any 5 out of 7 questions (5 x 10= 50 marks)

11. a) With the aid of diagram explain domestic refrigeration plant used on board ship ?
b) Why critical temperature of refrigerant is so important considering the plant operation? (8+2)
12. State the reason behind the following problem in a refrigeration plant.
 - a) Compressor short cycle
 - b) Discharge pressure too high
 - c) Suction pressure too high
 - d) Compressor fail to start . (2.5x4)

13. With the aid of diagram describe the 'zone control system' of ship board air-conditioning unit. State the important factor to maintain correct condition of comfort. (10)
14. a) With aid of diagram explain Engine Room ventilation arrangement ?
b) What is the regulatory requirement of pump room ventilation? (8+2)
15. a) What are the three forms of mechanical vibration, briefly define ?
b) What is critical speed and barred speed range?
c) Briefly explain any one of the main engine anti vibration fitting with its operation. (3+2+5)
16. a) What are the desirable property of Generator engine crank case oil ?
b) What are the common lubrication methods used to supply lubricant to bearings ? (7+3)
17. a) What are the impurities present in the marine fuel oil ?
b) What is microbial contamination of marine fuel oil ? What are the sources and how it can be prevented? How microbial attack can be identified ? (4+6)
