INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination December 2017

Programme: B.Tech (Marine Engineering) **Semester:** V

Subject Name: Marine Auxiliary Machines - I **Subject Code:** UG11T2505/1505

Date: 13.12.2017 **Maximum Marks:** 100

Time: 3 Hours **Pass Marks:** 50

Part - A

(All questions are compulsory) (10X3 = 30 Marks)

1) (a) Briefly explain the factors to be considered while selecting the pipeline material on board.
(b) Draw and label a fresh water hydrophore system.
(c) Sketch and explain the magnetic filter used in marine applications.
(d) Briefly explain the concept of cavitation in a centrifugal pump.
(e) With the help of a block diagram explain the RO process used for production of fresh water on board.
(f) Sketch and label a typical air bottle used on board with associated mountings.
(g) List down the criteria for discharging machinery space bilges as per MARPOL Annex I.
(h) Briefly discuss the concept of homogenizers.
(i) Sketch and explain the working of a Bow thruster.
(j) List down the various stresses acting on Tail end, Intermediate and Thrust shafts.

Part - B

(Answer any 5 of the following seven questions) (5X14 = 70 Marks)

2) a) Sketch and explain the typical Lub Oil system used for Main Propulsion Engines. Discuss how the Lub oil temperature is automatically controlled. (14 marks)

3) a) Sketch and explain simple line diagram for HFO and DO bunkering. What are the safety fittings incorporated in the system? (7 marks)

b)Explain the working of aGear pump with the help of a neat diagram. (7 marks)

4) Sketch and explain the working of a two stage reciprocating air compressor. (14 marks)

5) Sketch and explain the working of a two stage Oily water separator. Discuss STOKES Law in this context. (14 marks)

6) Explain the working of a Four ram electro-hydraulic steering gear with the help of a neat diagram. Elaborate the concept of hunting gear. (14 marks)

7) Explain a type of biological sewage treatment plant with the help of a neat diagram. (14 marks)

8) a) Explain Pilgrim nut method for fitting propellers. (6 marks)
b) Sketch and label oil lubricated stern tube arrangement. (8 marks)

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