

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
END SEMESTER EXAMINATIONS- DECEMBER 2018
B.Sc. (Nautical Science)
SEMESTER-III

Marine Engineering, Automation & Control System, Paper I
(UG21T3303)

Date: 31-12-2018
Time: 3 hrs

Maximum Marks: 70
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.

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1. a) Define Hook's Law (2 Marks)
b) What are the uses of ceramics? (2 Marks)
c) What is a Step Up Transformer? (2 Marks)
d) What are the services to which power is supplied from the emergency generator? (2 Marks)
e) Name the different methods used for generating fresh water from sea water onboard a ship (2 Marks)

 2. a) Explain the following:
(i) Stress (2½ marks)
(ii) Strain (2½ marks)

b) Explain the following:
(i) Tensile force (2½ marks)
(ii) Compressive force (2½ marks)

 3. a) Explain the following:
(i) Ductility (2½ Marks)
(ii) Malleability (2½ Marks)

b) Explain the various methods of heat treatment of steels. (5 Marks)

 4. a) Name the different types of steels and their uses. (5 Marks)

b) Explain the following
(i) Hardness (2½ Marks)
(ii) Melting Point (2½ Marks)

5. a) Explain the procedure for starting emergency generator manually. (5 Marks)
b) Explain the procedure for maintenance of batteries onboard ship. (5 Marks)
6. a) What is a short circuit trip? Explain. (5 Marks)
b) Explain the paralleling operation of alternators. (5 Marks)
7. a) List out the following:
(i) Machineries found onboard a ship (2½ Marks)
(ii) Supporting systems for the Main Engine Plant (2½ Marks)
b) Describe the working of any one type of fresh water generator used onboard a ship. (5 Marks)
8. a) Explain the working of an air compressor. (5 Marks)
b) Explain the construction & working of a water tube boiler. (5 Marks)
9. a) Describe the working of 2 ram electro hydraulic steering gears. (5 Marks)
b) Explain the working of a compression refrigeration cycle. (5 Marks)
