

INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

M.Tech. (Marine Engineering & Management)

May-June 2018 Semester Examinations

Semester-I

**Materials in Marine Environment, Marine Inspection and Survey
(PG13T1103)**

Date : 29.05.2018

Maximum Marks : 100

Time: 3 Hrs

Pass Marks : 50

Note: Answer **any five** questions. All questions carry equal marks.

(5 x 20 Marks = 100 Marks)

1. (a) What exactly is meant by "Phase" in the context of Phase Diagrams.
(b) Draw a simple Phase diagram and indicate/describe the two or three phases that appear in it.

[10+10 =20]
2. (a) What is meant by "Polymorphism" and "Allotropy".
(b) Give at least two examples of materials/metals/nonmetals that exhibit this property of Polymorphism.

[10+10 =20]
3. (a) Explain "Critical Temperature" in the context of the phenomenon of "Superconductivity".
(b) Give some examples of Superconducting Materials along with their respective Critical temperatures.

[10+10 =20]
4. Draw neat sketches with labels of the following Steel Sections used for shipbuilding; **Flat Bar, Bulb Plate, Equal Angle, Unequal Angle, Channel, Tee , Round Bar, Square Bar.**

[20]

5. (a) What is "Galvanic Corrosion" . List out the "Galvanic Series" of Metals and Alloys in Sea Water.

(b) What are the steps that can be taken to minimize the effects of Galvanic Corrosion.

[10+10 =20]

6. (a) Name the different types of faults that may occur in a weld.

(b) Make a hand sketch of a bad(faulty) weld, showing the different types of faults possible.

[10+10=20]

7. (a) Define a Nanometre. How does it compare with a millimetre.

(b) Elaborate on the use of Nanotechnology in the modern 21st century way of life.

[10+10 =20]

8. (a) What is the role of Classification Societies in ensuring safety in the Marine/Shipping Business.

(b) When was IACS (International Association of Classification Societies) formed. Name all the members of the IACS.

[10+10 =20]
