

Indian Maritime University
(A Central University, Govt. Of India)
End Semester Examination December 2019
M.Tech (Marine Engineering and Management)
Semester - I

Materials in Marine Environment, Marine Inspection & Survey.
(PG13T1103)

Date: 10.12.2019

Max Marks: 60

Time: 3 Hours

Pass Marks: 30

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

(5 x 12 Marks = 60 Marks)

1. (a) What type of steels are normally used for shipbuilding and what are their desirable properties?

(b) What are the Classification Society requirements before they accept/approve any steel for shipbuilding? [6+6 =12]
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. [6+6 =12]
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. [6+6 =12]
4. (a) What is meant by "Composite Materials". Give some examples of Composite Materials occurring in nature and also some man made composite materials?

(b) Write a short note on the application of composite materials in the marine construction industry. [6+6 =12]
5. (a) What is meant by "Corrosion". Elaborate on the role of Corrosion in the Marine Environment.

(b) What are "Corrosion Inhibitors". & "Surface Coatings" in the prevention of Corrosion. [6+6 =12]
6. Write short notes on the following:
 - a) Fillet Weld.
 - b) Butt Weld.
 - c) Weld Faults.
 - d) Weld Testing[3X4=12]

7. (a) What are the sources of Nano particles in the natural environment. Name some areas of the world which are known to generate most of these nano particles.

(b) What are the sources of Anthropogenic (originating from human activity) nano particles. Elaborate on them.

[6+6 =12]

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.

[6+6 =12]

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