INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination Dec 2019/Jan 2020

B.Tech (Marine Engineering)

Semester -V

UG11T3501- Material Science

Date: 09.12.2019	**Max Marks: 70**
Time: 3 Hours	**Pass Marks: 35**

PART -A

(Answer all the questions) **10 x 2 = 20 marks**

1. What is the atomic radius of F.C.C. Structure ?
2. Define Hume Rothery ratio?
3. What are Intermetallic Compounds?
4. What is meant by Eutectoid alloy system give some suitable examples?
5. How blue brittleness takes place on steel?
6. What is bio-fouling?
7. What is PTFE ? Give any two applications?
8. What type of materials are used in ship hull?
9. What is gun metal, give the composition, properties and uses ?
10. How Buna -S- rubber is prepared and give any two applications ?

PART -B

Answer any 5 out of 7 questions (5 x10 = 50 marks)

11. Explain briefly about the atomic packing factor in B.C.C. F.C.C & H.C.P
12. Two components A & B mutually liquid solubility but both solid insolubility , explain briefly with suitable example?
13. Draw a neat sketch of Iron Carbide diagram and explain the various reactions involved in it?
14. Explain the following : a. Carburizing b. Nitriding
    c. Flame Hardening d. Cyaniding
15. Define the term Corrosion ? Explain the various types of corrosion with suitable examples?
16. What is fatigue? Explain the various fatigue loadings occurs on the metals.
17. Explain the following : a. Bauschinger effect
    b. Elastic after effect

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