

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - III CHEMICAL CHEMICAL :SUMMER- 2022
SUBJECT : ITC-I: MATERIAL SCIENCE & ENGINEERING

Day : Friday
Date : 3/6/2022

S-24436-2022

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.:

- 1) All questions are **COMPUSLROY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Use of non-programmable scientific **CALCULATOR** is allowed.
 - 4) Draw neat and labeled diagram **WHEREVER** necessary.
 - 5) Assume suitable data if necessary.
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Q.1 What is importance of selection of material in process design? Which are the criteria for material selection? [10]

OR

Q.1 Which are the chemical, thermal and mechanical properties controlling selection of material in process design? What is their importance? [10]

Q.2 a) What is stainless steel? How the property modification and application is controlled in stainless steel? [05]

b) What is iron-iron carbide system? How property and applicability is controlled by formation of iron carbide? [05]

OR

Q.2 Which are the properties of copper? How its property and applicability are controlled by formation of alloys? [10]

Q.3 How polymer structure and composition correlates with its mechanical and physical property? How it controls applicability of polymer? [10]

OR

Q.3 What is depolymerization? What is its importance? How biodegradable and sustainable polymers affects selection for various applications? [10]

Q.4 What is the variation in properties of refractory, clays and vitreous silica? How it affects their applicability in process industry? [10]

OR

Q.4 What is difference between RCC and pre-stressed concrete? How it alters their applicability? [10]

Q.5 What is stress? How it affects structural and material failure? Which are factors affecting stress related failure of material? [10]

OR

Q.5 Which are internal and external factors affecting corrosion of chemical equipment? How it leads to material failure? [10]

Q.6 What is polymer lining? Which are factors to be considered for selection of polymers for equipment lining? [10]

OR

Q.6 Which are the methods for control and prevention of corrosion? How they affect selection and applicability of materials in process industry? [10]

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