

B.Tech. SEM -I (Chemical) 2014 Course (CBCS) : SUMMER - 2019

SUBJECT : CHEMICAL ENGINEERING MATERIALS

Day : Wednesday

S-2019-2530

Time : 10.00 AM TO 01.00 PM

Date : 15/05/2019

Max. Marks : 60

N.B. :

- 1) All questions are **compulsory**.
- 2) Figures to the right indicate full **marks**.
- 3) Draw neat labeled diagram **wherever** is necessary.
- 4) Assume suitable data if **required**.

Q. 1 Which are important technological properties? How these technological properties affect material selection and applicability? **(10)**

OR

What is need for modification of properties? Which are the methods of property modification? How does it help to control properties? **(10)**

Q. 2 a) Which are special alloy steels? Explain their composition, properties and applicability? **(05)**

b) Which are important properties of nickel? How they affect applicability of nickel? **(05)**

OR

a) How does property improvement take place by formation of iron-carbide? How it affect their applicability? **(05)**

b) Which important properties of copper? How it affects their applicability? **(05)**

Q. 3 What is the basis for selection of polymeric materials for equipment lining? Explain them in details. **(10)**

OR

What is coating? What is the importance of coating? How surface preparation takes place during coating? **(10)**

Q. 4 a) What is vitreous silica? Which are their properties and applications? **(05)**

b) What is cement-concrete? How does the improvement in property take place during cement-concrete formation? **(05)**

OR

a) What are refractories? Which are their properties? How they affect applicability? **(05)**

b) What is glass? Explain the correlation between property and applicability. **(05)**

Q. 5 a) How does acid-base environment lead to material failure? How does it affect material applicability? **(05)**

b) What is chemical and biochemical corrosion? How does it affect material applicability? **(05)**

OR

a) What is stress? How does it lead to material failure? **(05)**

b) Which are the methods of corrosion attack? Explain them. **(05)**

Q. 6 How does the glass and ceramic lining formed? What are its properties and applicability? **(10)**

OR

What is the importance of polymer lining? How it is formed? What are its properties? **(10)**

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