

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER- II • EXAMINATION – SUMMER 2014

Subject Code: 2110001

Date: 21-06-2014

Subject Name: Chemistry

Time: 02:30 pm to 05:00 pm

Total Marks: 70

Instructions:

1. **Question No. 1 is compulsory. Attempt any four out of remaining six questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 Answer the following question. **14**

- 1 The nucleus of an atom consists of
A. electrons and neutrons. B. electrons and protons
C. protons and neutrons D. All of the above
- 2 The number of moles of solute present in 1 kg of a solvent is called its
A. molality B. molarity
C. normality D. formality
- 3 The most commonly used bleaching agent is
A. alcohol B. carbon dioxide
C. chlorine D. sodium chlorine
- 4 Give IUPAC nomenclature for following compounds.
BrCH₂-CH₂-CH₂-CH₂COOH
A. 1- bromo 5- pentanoic acid B. 4 - bromo 1- carboxylic acid
butane
C. 5 - bromo pentanoic acid D. none of above.
- 5 10 ppm. = _____ °Fr
A. 5 B. 10
C. 1 D. 0.7
- 6 What happens when hard water was used in Boiler?
A. Boiler corrosion B. Scale and sludge
C. Priming and forming D. All of above.
- 7 Write chemical formula for Potassium chromate
A. KMnO₄ B. K₂CrO₄
C. K₂Cr₂O₇ D. None of above.
- 8 The material which can be deformed permanently by heat and pressure is called
a
A. Thermoplastic B. Thermoset
C. Chemical compound D. Polymer
- 9 The method that cannot be used for removing permanent hardness of water is
A. Adding sodium carbonate B. Distillation
C. Adding caustic soda D. Boiling
- 10 Which acid is present in lemon?
A. Marlic acid B. Citric acid
C. lactic acid D. tartaric acid
- 11 Which metal is heaviest?
A. Osmium B. Mercury
C. Iron D. Nickle
- 12 Nail polish remover contains?
A. Benzene B. Acetic acid
C. Acetone D. Petroleum ether

- 13** pH of blood is ?
A.10.4 **B.** 9
C. 7.4 **D.**4
- 14** Biogas majorly contains?
A.Ethane **B.**Methane
C.Hydrogen **D.**CO
- Q.2 (a)** Write short note on
1. Purposes of Alloy making. **03**
2. Give any one method for Desalination of Brackish water. **04**
- (b)** A Sample of water on analysis was found to contain the following impurities: **07**
 $\text{Ca}(\text{HCO}_3)_2 = 32.4 \text{ mg/L}$, $\text{Mg}(\text{HCO}_3)_2 = 14.6 \text{ mg/L}$, $\text{CaSO}_4 = 6.8 \text{ mg/L}$,
 $\text{MgSO}_4 = 6.0 \text{ mg/L}$. Calculate temporary, permanent and total hardness in ppm,
 $^\circ\text{Cl}$ and $^\circ\text{Fr}$. [Molecular Mass: $\text{Ca}(\text{HCO}_3)_2 = 162 \text{ g/mole}$, $\text{Mg}(\text{HCO}_3)_2 = 146 \text{ g/mole}$, $\text{CaSO}_4 = 136 \text{ g/mole}$, $\text{MgSO}_4 = 120$.]
- Q.3 (a)** Describe the mechanism of Electrochemical corrosion by hydrogen evolution **07**
and oxygen absorption.
- (b)** Give monomers of Nylon 6, 6 and Bakelite. Differentiate between Thermoplastic **07**
and Thermosetting polymers.
- Q.4 (a)** What is Corrosion? Differentiate between Dry and Wet corrosion. **07**
- (b)** What is CNG? Give advantages and disadvantages of Gaseous Fuel. **07**
- Q.5 (a)** Explain Setting and Hardening process of Portland cement. **07**
- (b)** Enlist disadvantages of Natural Rubber. Explain Vulcanization process of **07**
Rubber.
- Q.6 (a)** What is the composition of Portland Cement? Discuss the manufacturing process **07**
of Portland cement.
- (b)** What are the significances of Biogas? Give manufacturing process of Biogas. **07**
- Q.7 (a)** Describe Manufacturing process of Acetic acid by fermentation. **07**
- (b)** Write a short note on.
1. Natural & Artificial Abrasive. **03**
2. pH & its measurement **04**
