Seat No.: _____ Enrolment No._____

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.
$BrCH_2– CH_2 -CH_2 – CH_2 COOH$
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. = _____ ^oFr
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.$KMnO_4$ **B.** K_2CrO_4
C. $K_2Cr_2O_7$ **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**
$Ca(HCO_3)_2$ =32.4 mg/L, $Mg(HCO_3)_2$ =14.6 mg/L, $CaSO_4$ =6.8 mg/L, $MgSO_4$=6.0 mg/L. Calculate temporary, permanent and total hardness in ppm, ^oCl and ^oFr.[Molecular Mass: $Ca(HCO_3)_2$ = 162 g/mole, $Mg(HCO_3)_2$ = 146 g/mole, $CaSO_4$ = 136 g/mole, $MgSO_4$= 120.]

Q.3 **(a)** Describe the mechanism of Electrochemical corrosion by hydrogen evolution and oxygen absorption. **07**

(b) Give monomers of Nylon 6, 6 and Bakelite. Differentiate between Thermoplastic and Thermosetting polymers. **07**

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 Rubber. **07**

Q.6 **(a)** What is the composition of Portland Cement? Discuss the manufacturing process of Portland cement. **07**

(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**

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