

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– 1<sup>st</sup>/2<sup>nd</sup> (NEW SYLLABUS) EXAMINATION – SUMMER 2015

Subject Code: 2110001

Date:17/06/2015

Subject Name: Chemistry

Time: 10.30am-01.00pm

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 (a) Objective Question (MCQ)

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1. If nitrogen is present in the given sample than in its Lassaigne's solution it will be converted into....  
(a) Sodium nitrate (b) Lead Chloride  
(c) Sodium cyanide (d) Lead nitrite
2. Oxidation test is usually carried out in ...  
(a) Shell Tube (b) Bomb Tube  
(c) Test tube (d) Hydrogen tube
3. Which of the following compound will give green flame during Beilstein Test?  
(a) Benzene (b) Toluene  
(c) Chloroform (d) All of these
4. 'Similia Similibus' is the principle of  
(a) Crystallization (b) Vaporization  
(c) Sublimation (d) Distillation
5. Which of the following compound will show sublimation  
(a) Benzene (b) Toluene  
(c) Naphthalene (d) All of these
6. Identify the sweeter solution of sugar prepared in water.  
(a) 1 m sugar solution (b) 1 M sugar solution  
(c) 0.5 m sugar solution (d) 0.5 M sugar solution
7. For Chromatography identify the incorrect statement.  
(a) The eluate is a mobile phase leaving the column.  
(b) The eluent is the solvent that carries the analyte  
(c) The analyte is the stationary phase made by silica.  
(d) The solute refers to the sample components in partition chromatography.

(b)

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1. Identify the right pair of novolak resin's constituents.  
(a) Benzene + Formaldehyde (b) Phenol + Acetal  
(c) Phenol + Methanal (d) Toluene + Formaldehyde
2. Chemically fats and oils are  
(a) Bases (b) Strong bases  
(c) Acids (d) Esters
3. Identify the wrong pair  
(a) Condenser – Distillation (b) Funnel – Sublimation  
(c) Vacuum Flask –Filtration (d) All of these

4. What piece of laboratory equipment is best suitable to measure accurate volume of liquid?
  - (a) Accurate funnel
  - (b) Graduated cylinder
  - (c) Erlenmeyer Flask
  - (d) Conical flask
5. Which method is useful for the separation of 1°, 2° and 3° amines?
  - (a) Hinsberg method
  - (b) Hoffmann Method
  - (c) Both a and b
  - (d) none of these
6. Which of the following is not so complicated for in process analysis?
  - (a) GC
  - (b) HPLC
  - (c) TLC
  - (d) GC-MS
7. Whipped cream is an example of \_\_\_\_\_ type of colloid.
  - (a) Aerosol
  - (b) Gel
  - (c) Sol
  - (d) Foam

**OR**

**Q1 (a)**

- Answer the following
1. Homogeneous mixture of solute and solvent is known as \_\_\_\_\_
 

<b>A</b> Solution	<b>B</b> Steam
<b>C</b> Liquid	<b>D</b> Gas
  2. An acidic solution has its pH \_\_\_\_\_
 

<b>A</b> Equal to 7	<b>B</b> Less than 7
<b>C</b> More than 7	<b>D</b> Any one of this
  3. A sample of water that does not give lather with soap solution is \_\_\_\_\_
 

<b>A</b> Soft water	<b>B</b> Hard water
<b>C</b> Acidic water	<b>D</b> Alkaline water
  4.  $pH + pOH =$  \_\_\_\_\_
 

<b>A</b> 10	<b>B</b> 12
<b>C</b> 14	<b>D</b> 16
  5. A long chain of \_\_\_\_\_ is called polymer.
 

<b>A</b> Isomers	<b>B</b> Optical isomers
<b>C</b> Geometrical isomers	<b>D</b> Monomers
  6. A substance when heated directly get converted from solid to gaseous state without appearance of liquid state. This phenomenon is known as \_\_\_\_\_
 

<b>A</b> Sublimation	<b>B</b> Distillation
<b>C</b> Crystallization	<b>D</b> None of these
  7. \_\_\_\_\_ is the technique to separate two liquid compounds.
 

<b>A</b> Sublimation	<b>B</b> Distillation
<b>C</b> Crystallization	<b>D</b> Polymerization

**(b)** Answer the following.

1. A normal solution is that when equivalent weight of a compound is dissolved into \_\_\_\_\_ litre of solution.
 

<b>A</b> 10	<b>B</b> 100
<b>C</b> 1	<b>D</b> 1000
2. If a solution is having its  $pH = 10$ . It is a \_\_\_\_\_ solution

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- A** Neutral    **B** Basic  
**C** Acidic    **D** None of these

3. \_\_\_\_\_ hardness of water can be removed by just boiling.  
**A** Permanent    **B** temporary  
**C** Both    **D** None of these
4. polyethen is made up of polymerization of \_\_\_\_\_ monomers  
**A** Butane    **B** propene  
**C** Ethene    **D** methene
5. \_\_\_\_\_ is the technique of separation and identification of chemical compounds.  
**A** Chromatography    **B** bibliography  
**C** Biography    **D** None of these
- 6 HPLC is \_\_\_\_\_  
**A** High plastic liquid chromatography    **B** Highly poor liquid chromatography  
**C** High pressure latex chromatography    **D** High pressure liquid chromatography
- 7 An acidic solution turns blue litmus paper \_\_\_\_\_  
**A** Red    **B** Black  
**C** Yellow    **D** Green

- Q.2** (a) What is 'Green Chemistry'? Give Lewis representation of  $PCl_5$ . **03**  
(b) Give Importance of organic Molecules. **04**  
(c) Explain the term 'Brackish water'. Write a note on caustic embrittlements. **07**
- Q.3** (a) What is back point chlorination? Write its usefulness. **03**  
(b) Explain the terms: Sacrificing anode and Corrosion inhibitors **04**  
(c) Define Alloy. Why we make alloy. Give industrial uses of non-ferrous Alloys. **07**
- Q.4** (a) Explain the terms: PCC and RCC. **03**  
(b) Explain the anionic polymerization with mechanism. **04**  
(c) What is the composition of Portland Cement? Discuss the manufacturing process of Portland cement. **07**
- Q.5** (a) Give difference between natural and synthetic rubber. **03**  
(b) Write four different industrial applications of enzymes. **04**  
(c) What is proximate and ultimate analysis of coal? Write Characteristics of good fuel. **07**
- Q.6** (a) Define the terms: Specific gravity, Conductivity and Turbidity. **03**  
(b) Write a short note on standards of cements. **04**  
(c) What is PMMA? Give important applications of Viscose Rayon and PMMA. **07**
- Q.7** (a) What are glass fibers? Write Uses of glass fibers. **03**  
(b) Explain any four types of bonds with one example of each. **04**  
(c) Write classification, properties and uses of Insulators. **07**

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