

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE SEMESTER 1<sup>st</sup> / 2<sup>nd</sup> (OLD) EXAMINATION WINTER 2016**

**Subject Code: 110001****Date: 21/01/2017****Subject Name: Chemistry****Time: 10:30 AM TO 1:00 PM****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define the following terms: **07**  
(1) Non-Ferrous alloys (2) Combustion (3) Non hydraulic cement (4) Pollutant  
(5) Fermentation (6) Renewable energy resource (7) Chromatography
- (b) Choose the correct option: **07**  
(1) Which of the following salts is responsible for temporary hardness?  
(a)  $\text{Ca}(\text{HCO}_3)_2$  (b)  $\text{CaCl}_2$  (c)  $\text{MgSO}_4$  (d)  $\text{CaSO}_4$   
(2) Electrochemical corrosion always occurs  
(a) At cathode (b) At anode (c) At cathode and anode both (d) Neither at anode nor at cathode  
(3) Which of the following is a solid lubricant?  
(a) Animal oil (b) Grease (c) Blended oil (d) Graphite  
(4) Which of the following is an example of thermosetting polymer?  
(a) Polyester (b) PVC (c) Polythene (d) Polystyrene  
(5) Cotton is a  
(a) Safety fiber (b) Synthetic fiber (c) Natural fiber (d) Semi-synthetic fiber  
(6) Constituents of a varnish are?  
(a) Resin (b) Driers (c) Both (d) None  
(7) A material which can withstand high temperature, without softening is  
(a) Refractory (b) Abrasive (c) Insulator (d) None of these
- Q.2** (a) What is lubrication? Why is lubricant needed? **03**  
(b) Explain Sacrificial anodic protection method of corrosion control. **04**  
(c) Explain Electrodialysis method for desalination of brackish water. **07**
- Q.3** (a) What are alloys? Discuss the necessity of making alloys. **03**  
(b) What are the characteristics of a good fuel? **04**  
(c) Explain setting and hardening of cement with necessary equations. **07**
- Q.4** (a) What is electroplating? What are the objectives of electroplating on metals? **03**  
(b) Write properties and uses of glass fibers. **04**  
(c) Describe in detail about molding constituents of plastic. **07**
- Q.5** (a) Differentiate between renewable and non-renewable energy resources. **03**  
(b) Write a note on Greenhouse effect. **04**  
(c) Explain in detail about biofuel. **07**
- Q.6** (a) Write a note on priming and foaming in boilers. **03**  
(b) Write a note on abrasives. **04**  
(c) Explain oxidation corrosion in detail with mechanism and nature of oxide layer. **07**
- Q.7** (a) Give classification of fuels with examples. **03**  
(b) Describe addition polymerization with suitable example. **04**

(c) Draw and explain graph of strong acid vs. strong base conductometric titration. **07**

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