

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

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

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-I & II (NEW) EXAMINATION – SUMMER-2019

Subject Code: 2110001

Date: 03/06/2019

Subject Name: Chemistry

Time: 10:30 AM TO 01:00 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.

	<b>Mark</b>
<b>Q.1 (a) Objective Question (MCQ)</b>	<b>07</b>
1. In propyne there are (a) Six sigma bonds and two $\pi$ bonds (b) Seven sigma bonds and one $\pi$ bond (c) Six sigma bonds and one $\pi$ bond (d) Eight sigma bonds	
2. Calgon is the name given to (a) Sodium Silicate (b) Sodium hexameta phosphate (c) Sodium metaphosphate (d) Calcium phosphate	
3. The range of UV-visible spectroscopy is (a) 200-800nm (b) 400-800nm (c) 200-400nm (d) None of these	
4. Galvanizing is the process of coating iron with (a) Mg (b) Cu (c) Zn (d) Ni	
5. An example of primary fuel is (a) Natural gas (b) Petrol (c) Wood charcoal (d) Coke	
6. The boiling point of a liquid is the temperature at which vapour pressure (a) Is equal to internal pressure (b) Is equal to external pressure (c) Is greater than internal pressure (d) Is lesser than internal pressure	
7. Corrosion is an example of (a) Oxidation (b) Reduction (c) Electrolysis (d) Erosion	
<b>(b)</b>	<b>07</b>
1. $0.1^\circ$ French = _____ $^\circ$ Clarke's.	

2. Give IUPAC name of Neopentyl chloride \_\_\_\_\_.
  3. \_\_\_\_\_ plastic cannot be remolded.
  4. Vulcanite contains about 32% \_\_\_\_\_.
  5. Vinegar is 6-10% aqueous solution of \_\_\_\_\_.
  6. Main component of natural gas is \_\_\_\_\_.
  7. Nylon 6:6 is polymer of \_\_\_\_\_.
- Q.2**
- (a) Differentiate between ionic bond and covalent bond with suitable examples. **03**
  - (b) Explain caustic embrittlement in boilers. **04**
  - (c) Calculate the temporary hardness and permanent hardness (in ppm) of a sample of water containing :  $\text{Mg}(\text{HCO}_3)_2=7.3\text{mg/L}$ ;  $\text{Ca}(\text{HCO}_3)_2=16.2\text{mg/L}$ ;  $\text{MgCl}_2=9.5\text{mg/L}$ ;  $\text{CaSO}_4=13.6\text{mg/L}$  (Atomic weights of Mg and Ca are 24 and 60 respectively) **07**
- Q.3**
- (a) Define alloy. What are the uses of non-ferrous alloys? **03**
  - (b) Write a short note on physical properties of metal. **04**
  - (c) Discuss mechanism of electrochemical corrosion. **07**
- Q.4**
- (a) Give advantages of R.C.C. over plain concrete. **03**
  - (b) Why curing of concrete is done? **04**
  - (c) Define cement. Discuss manufacturing of Portland cement. **07**
- Q.5**
- (a) Name five fibers made from natural sources. How they differ in their properties. **03**
  - (b) Discuss properties and uses of insulators. **04**
  - (c) Draw structure of natural rubber. Discuss the drawback of natural rubber and how it can be overcome. **07**
- Q.6**
- (a) What is "Sacrificial anode"? **03**
  - (b) Write a short note on refining of petroleum by fractional distillation. **04**
  - (c) Discuss benefits and dangers of biotechnology. **07**
- Q.7**
- (a) Define (a) Specific gravity (b) Abrasives (c) Insulators **03**
  - (b) Explain Seger cone-test and its significance. **04**
  - (c) How desalination of brackish water is done by electro dialysis cell? **07**

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