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.**

**Mark**

**Q.1 (a) Objective Question (MCQ)** **07**

**1.** In propyne there are
- (a) Six sigma bonds and two π bonds
- (b) Seven sigma bonds and one π bond
- (c) Six sigma bonds and one π 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)** **07**

**1.** 0.1˚ French = ____ ˚ 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 _____.

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|---|---|---|---|
| **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 : $Mg(HCO_3)_2$=7.3mg/L; $Ca(HCO_3)_2$=16.2mg/L; $MgCl_2$=9.5mg/L; $CaSO_4$=13.6mg/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 electrodialysis cell? | **07** |

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