GUJARAT TECHNOLOGICAL UNIVERSITY  
BE- SEMESTER– 1st / 2nd (NEW) • EXAMINATION – SUMMER 2016

Subject Code: 2110001  
Subject Name: Chemistry  
Date: 31/05/2016  
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 Objective Question (MCQ)  
Mark

(a)  
1. A sample of water that does not give lather with soap solution is______
   (a) Soft water  (b) Hard water  (c) Acidic water  (d) Alkaline water
2. The type of bonds in EDTA with metal cation is:
   (a) Covalent  (b) Ionic  (c) Wanderwaals  (d) Coordinate
3. The Total dissolved solids (TDS) can be reduced by the following method
   (a) Distillation  (b) Reverse osmosis  (c) Ion exchange  (d) All of the above
4. The ultimate source of water is
   (a) Rivers and Lakes  (b) Dew and Forest  (c) Rain and Forest  (d) Underground and surface
5. Bronze is an alloy of
   (a) Cu and Nickel  (b) Cu and iron  (c) Cu and Tin  (d) Cu and Aluminium
6. Corrosion of metals involves
   (a) Physical reactions  (b) Chemical reactions  (c) Both  (d) None
7. The solid fuels can be used in Internal combustion engine only after their
   (a) Solidification  (b) Liquefaction  (c) Gasification  (d) All of the above

(b)  
1. Nylon-6 is manufactured from
   (a) Caprolactum  
   (b) Maleic anhydride and hexamethylene diamine  
   (c) Adipic acid and hexamethylene diamine  
   (d) sebasic acid and hexamethylene diamine
2. __________ is the technique of separation and identification of chemical compounds.
   (a) Chromatography  (b) bibliography  (c) Biography  (d) None of these
3. Microorganisms used in biotechnology shall not
   (a) grow rapidly in cheap culture medium  
   (b) shall be readily manipulated  
   (c) shall bot be pathogenic  
   (d) all of these
4. Which acid is present in lemon
   (a) Malic acid  (b) Citric acid  (c) Lactic Acid  (d) Tartaric Acid
5. Final setting time of cement should not be more than
   (a) 1 hour  (b) 2 hours  (c) 5 hour  (d) 10 hours
6. Bio-Gas is
   (a) Methane rich fuel  (b) Ecofriendly and pollution free source  
   (c) Propoane rich fuel  (d) Both A & C
7. An aqueous solution with pH = 0 is
   (a) Strongly acidic  (b) Strongly basic  (c) Neutral  (d) Weakly acidic
Q.2  
(a) What do you understand by ‘Green Chemistry’? 03  
(b) Describe any four types of bonds with one example of each. 04  
(c) How can the knowledge of water technology help us in solving the problem of drinking water availability in our country. 07

Q.3  
(a) Write a short note on “Break Point Chlorination” 03  
(b) Discuss cathodic protection and its significance. 04  
(c) List the need for alloying steel. Explain how different alloys of steel are useful in industries. 07

Q.4  
(a) Explain the terms: Sacrificing anode and Corrosion inhibitors 03  
(b) What is R.U.L. test and its usefulness. 04  
(c) Illustrate the disadvantages of using coal as fuel. Compare LPG & CNG and state which is better and economical. 07

Q.5  
(a) Which elements are called metal? 03  
(b) Define the terms: Specific gravity, Conductivity and Turbidity. 04  
(c) Describe the Manufacturing process of Acetic acid by fermentation. 07

Q.6  
(a) Brief on PCC and RCC 03  
(b) Discuss anionic polymerization with mechanism. 04  
(c) What is the composition of Portland Cement? Discuss the manufacturing process, setting and hardening of Portland cement. 07

Q.7  
(a) Explain vulcanization of rubber. 03  
(b) Give application of polystyrene, PVC and polyethylene 04  
(c) What is monomers of Nylon 6, 6 and Bakelite. Differentiate between Thermoplastic and Thermosetting polymers 07

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