Enrollment No. _____

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)
Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL – 2017

B.Voc. Chemical Technology

BVCT-203 – SURFACE COATING TECHNIQUES

Duration of Exam – 2.30 hrs ***Semester – II*** ***Max. Marks – 70***

Que. 1 (A) Answer the following Questions **[10]**

1. Define surface coating.
2. Illustrate opacifiers used for Vitreous coating
3. The frequency range required for ultrasonic cleaning is _____.
4. The roll of rectifier is _____.
5. Amount of nickel sulphate in nickel plating bath should be _____.
6. What is paint?
7. Amount of copper in copper electroplating bath is _____.
8. Give bath composition of nickel electroplating.
9. The oxidation state of chromium in chromic acid is _____.
10. What is current efficiency?

Que. 1 (B) Answer the following Questions **[20]**

1. Give applications of surface coating.
2. How will you prepare 200ml, 0.1N sulfuric acid?
   (density 1.03 g/cm^3, molecular weight 98 gm/mol, percentage purity 50%)
3. Explain the term: throwing power.
4. Give bath composition and operating condition of copper electroplating bath.
5. What is anodic cleaning process?
6. Enlist cleaning process.
7. Explain ultrasonic cleaning process.
8. Enlist factors to be considered in the selection of cleaning process.
9. Explain the terms (a) common ion effect (b) electrolyte
10. During anodizing process, oxygen gas liberates at _____, and hydrogen gas liberate at _____.

Que. 2 Answer the following Questions (Any Four) **[20]**

1. A current of 0.300 A was passed for 20 min. through an electrochemical bath containing copper electrode in acidified copper sulphate aqueous solution. Calculate the amount of copper deposited at the cathode. The atomic weight of copper is 63.55 gm/mol and C = 96487.

2. Explain the method of applying paint on subtract.

3. Determine the time to obtained copper deposit of thickness 10^{-4} cm when electro deposition is done at 4A. The surface are of the substance is 314 cm^2. The atomic weight of copper is 63.55 and C = 96487. The density of copper is 8.93 gram / cm^3

4. Explain rate of deposition.

5. Explain basic principal of electroplating.

6. Give process for determination of nickel metal in nickel electroplating bath by volumetric analysis.

Que. 3 Answer the following Questions (Any Four) **[20]**

1. Explain anodizing in detail.

2. When a current of 4A flows for 5 min. through a bath containing a nickel electrode in solution of nickel sulphate in dilute boric acid. What is the thickness of nickel deposit? Are of surface is 7.5 cm^2 the atomic weight of nickel is 58.6934 and density of nickel is 8.907 C = 96487.

3. Explain solvent cleaning process in detail.

4. When a current of 3A flow for 8 Min. Through a bath containing a two copper electrode in solution of copper sulphate in dilute sulphuric acid. 0.36 gram of copper deposited on the cathode. Calculate current efficiency for the deposition of copper metal. The atomic weight of copper is 63.55 and C = 96487.

5. Explain copper electroplating in detail.

6. Explain manufacturing process for paint with diagram.