

Maulana Azad National Institute of Technology, Bhopal
Department of Chemistry

Mid-Term Test
Engineering Chemistry
Date of Exam: 04.03.2022

Teacher: Dr. Alok Mittal

Section: G

Duration 1.30 Hours + 15 Minutes Uploading Time, Max. Marks: 40

Important Instructions:

- a. *There are 4 questions in this paper, all questions carry equal marks and compulsory.*
- b. *Answers must be hand written (not typed) on a blank sheet.*
- c. *Write your name, scholar number, roll number and today's date on the top of every page of the uploaded document.*
- d. *The answer sheet(s) must be uploaded on the MS Teams portal within the stipulated time (as mentioned above). In case you fail to upload within the given duration, the attachment may be sent to chm122am@gmail.com.*
- e. *The file name should either contain your name or scholar number.*
- f. *Please note, after uploading your file on MS Teams, make sure to turn in the uploaded document.*

Questions:

1. Calculate the amount of Lime (80% pure) and Soda (80% pure) for the treatment of 1 thousand liters of water containing: $\text{Ca}(\text{HCO}_3)_2 = 8.1 \text{ ppm}$, $\text{Mg}(\text{HCO}_3)_2 = 7.3 \text{ ppm}$, $\text{CaCl}_2 = 33.3 \text{ ppm}$ and $\text{MgCl}_2 = 19 \text{ ppm}$, Equivalent Weights of compounds should be taken as $\text{Ca}(\text{HCO}_3)_2 = 81$, $\text{Mg}(\text{HCO}_3)_2 = 73 \text{ ppm}$, $\text{CaCl}_2 = 55.5 \text{ ppm}$, $\text{MgCl}_2 = 47.5 \text{ ppm}$ 10 Marks
2. a. Explain Priming and foaming. 5 Marks
b. Explain Breakpoint Chlorination with the help of its graph. 5 Marks
3. a. Explain Boundary Lubrication. 5 Marks
b. Explain Flash and Fire Point. 5 Marks
4. a. What are essential conditions of Electrochemical Corrosion? 4 Marks
b. What is Pigment Volume Concentration? 3 Marks
c. What is Pitting Corrosion? 3 Marks