First Sessional Exam, 2023

Programme: B.Tech 1st sem, Course Code: ET1M101 (Chemistry), Total Marks: 15, Time: 45min

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1. (a) State the phase rule. Draw a neat phase diagram of the water system. Calculate the degrees of freedom for water system at the sublimation curve and triple point. 5

Or

(b) Define isothermal, adiabatic, and isochoric processes. Write down two differences between reversible and irreversible processes.

2. (a) What do you mean by Normality and Molarity? Write its unit. 3

(b) Calculate the Molecular Weight and Equivalent Weight of the following: $KMnO_4$ (Mn is reduced from +7 to +2). 2

3. (a) Describe the working principle of the glass electrode. 3

Or

(b) Describe the working principle of the standard hydrogen electrode.

(c)Write the differences between dry corrosion and wet corrosion 2

All the best

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1. (a) What is eutectic mixture? Draw a neat phase diagram of the simple eutectic system. Show that for eutectic system the degrees of freedom at the eutectic point is zero. 5

Or

(b) What is state function and path function? Give an example of each. Write down two differences between reversible and irreversible processes.

2. (a) What do you mean by Normality and Molarity? Write its unit. 3

(b) Calculate the Molecular Weight and Equivalent Weight of the following: $H_2C_2O_4$. 2

3. (a) Describe the working principle of the calomel electrode. 3

Or

(b) Describe the working principle of the Galvanic cell.

(c) Write down the differences between primary cell and secondary cell. 2

All the best