

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- IVth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 141302****Date: 25/05/2012****Subject Name: Environmental Sciences-II****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is the basic difference between COD and BOD. **07**
(b) Determine the theoretical COD of following compound in mg/l? **07**
(i) 1000 mg/l Glucose
(ii) 1200 mg/l Acetic Acid

- Q.2** (a) Explain the kinetic approach of chemical equilibrium. **07**
(b) Calculate the H^+ ion concentration and P^H for 0.001 M solution of HNO_2 . Assume $K_a = 5.9 \times 10^{-4}$ **07**

OR

- (b) Explain the principle of Solvent Extraction. **07**

- Q.3** (a) The solubility product K_{sp} for cadmium hydroxide is 5.9×10^{-15} . Determine the solubility in mg/l of cadmium hydroxide in water at $25^\circ C$. **07**
(b) Explain the common ion effect with appropriate example. **07**

OR

- Q.3** (a) Write a short note on Dialysis. **07**
(b) Give the difference between **07**
(i) Ionization and dissociation
(ii) Homogeneous chemical equilibrium and Heterogeneous chemical equilibrium

- Q.4** (a) What is importance of P^H for determination of Chloride? Explain in detail. **06**
(b) Give the role of following chemicals in COD determination: **08**
(i) $K_2Cr_2O_7$
(ii) H_2SO_4
(iii) $HgSO_4$
(iv) Ferrous Ammonium Sulfate (FAS)

OR

- Q.4** (a) Write the public health significance and sources of Acidity. **07**
(b) Enlist sources of grease in domestic wastewater. **07**

- Q.5** (a) Write chemical equations involved in Unmodified Winkler Method. **07**
(b) Enlist requirements which must be complied with in order to obtain reliable BOD data. **07**

OR

- Q.5** (a) Give the difference between Aliphatic and Aromatic compounds biodegradability point of view. **07**
(b) What functional group is characteristic of each of the following: Alkenes, alcohol, aldehydes, ketons, acids, amines, aromatic compounds ? **07**
