Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **17CE3053** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED ENVIRONMENTAL CHEMISTRY AND MICROBIOLOGY** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Calculate the formula weight and equivalent weight of  i. MgCO3 ii. NaNO3 iii. CO2 iv. K2HPO4 v. BaSO4. | CO1 | 5 |
| b. | Interpret importance of enzymes in reactions of biological reactions and cofactors. | CO1 | 5 |
| c. | Determine the concentration of oxygen dissolved in water at 200 C in equilibrium with a gas mixture at 0.81 atm and containing 21 percent by volume of oxygen? | CO3 | 5 |
| d. | What tank volume is required to hold 10000 kg of methane gas at 25 degrees Celsius and 2 atm pressures? | CO3 | 5 |
| (OR) | | | | |
| 2. | a. | Describe the gases laws? | CO3 | 10 |
| b. | Summarize activity and activity coefficients? | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Recall about Amphoteric Hydroxides. | CO3 | 5 |
|  | b. | Extend about colloids dispersed in Air. | CO1 | 5 |
|  | c. | Classify the methods Destabilization of colloids. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Enumerate about electro kinetic properties of Hydrophobic colloids. | CO1 | 5 |
|  | b. | State about i. liquid-in –liquid system ii. Gas- in- Liquid system. | CO3 | 5 |
|  | c. | Discuss about i. Common Ion Effect ii. Diverse ion effect with examples. | CO1 | 5 |
|  | d. | Classify and explain Sorption isotherms. | CO3 | 5 |
|  |  |  |  |  |
| 5. | a. | Paraphrase aerosols? Explain types of aerosols and effects of aerosols on environment. | CO1 | 5 |
|  | b. | Define atmospheric chemistry? Explain about reactions occurred in Atmosphere. | CO3 | 5 |
|  | c. | Extend about optical and chromatographic Methods. | CO1 | 5 |
|  | d. | What is meant by Buffer index? Explain about Lamberts and Beers law. | CO1 | 5 |
| (OR) | | | | |
| 6. |  | List out the applications of environmental chemistry and microbiology in the areas of environmental engineering? | CO2 | 20 |
|  |  |  |  |  |
| 7. | a. | Summarize the classification of bacteria. | CO2 | 5 |
|  | b. | Sketch the growth curve and control methods of microorganisms growth. | CO3 | 10 |
|  | c. | Enumerate the effects of microorganisms on human health. | CO2 | 5 |
| (OR) | | | | |
| 8. | a. | Apply the mechanisms of microorganisms in ASP and trickling filter. | CO3 | 5 |
|  | b. | Memorise the microbiology of sludge. | CO2 | 15 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Construct the formation of acid rains and their causes and effects. | CO1 | 10 |
|  | b. | Express the causes, reactions and measures against ozone layer depletion. | CO3 | 10 |

ALL THE BEST