

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2015 Admission  
I<sup>st</sup> Semester Final Examination-February -2016

Cat. No: Basc.1104

Marks: 50.00

Title: Engineering Chemistry (2+1)

Time: 2 hours

## I Answer all Questions

(10 x 1=10)

1. Spectrophotometer is an instrument which functions on the basis of ..... law
2. The optimum value of BOD is .....
3. The substance responsible for pollution by leaded gasoline is .....
4. The major component of stratosphere is .....
5. Define  $R_f$  value?
6. Name any two synthetic lubricants
7. What is viscosity index?
8. Calculate the pH of a solution having hydrogen ion concentration of 0.005 M
9. Nitrate concentration exceeding 45 mg/L can cause infant methaemoglobinaemia (State True/False)
10. What is electrochemical series? What is its significance

## II Answer any Five questions

(5 x 2=10)

1. Differentiate between weak and strong electrolytes with examples
2. What is eutrophication?
3. What is fly ash? Give its composition
4. Differentiate between thermosetting and thermoplastics
5. Explain the reverse osmosis process
6. Calculate the EMF of a cell which is obtained by dipping a copper rod in 0.01 M  $\text{CuSO}_4$  and zinc rod in 0.001 M  $\text{ZnSO}_4$  solution at 25°C.  $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = +0.34\text{V}$  and  $E^\circ_{\text{Zn}^{2+}/\text{Zn}} = -0.76\text{V}$
7. What are the different types of electrodes? Give example for any two types

## III Answer any Five questions

(5 x 4=20)

1. What are the factors affecting corrosion?
2. What are the major air pollutants? How are they classified
3. Differentiate between BOD and COD
4. How the lubricants are classified? Explain
5. How will you determine the calorific value of a solid fuel?
6. Write notes on (a) Cracking (b) Octane number
7. Explain the mechanism of rusting of iron

**IV Answer any one question**

**(1 x 10=10)**

1. Write notes on (a) Standard Hydrogen Electrode (b) Boiler corrosion (c) Ion exchange process (d) Kohlrausch's law
2. (a) What are steps involved in solid waste management? Explain  
(b) Discuss water pollution with respect to toxic heavy metals