

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food. Engg) 2014 Admission

I<sup>st</sup> Semester Final Examination- January -2014

Cat. No: Basc.1104

Title: Engineering Chemistry (2+1)

Marks: 50

Time: 2 hours

## I. State True / False or Fill up the blanks

(10x1=10)

1. Evaporation and precipitation are an everlasting cycle in nature which is responsible for the creation and maintenance of the different source of water.
2. PVC is a thermosetting polymer.
3. Premature instantaneous ignition of fuel-air mixture in an internal combustion engine, leading to the production of an explosive violence, is known as antiknocking property.
4. Electrode potential of a metal is the measure of tendency of a metallic electrode to lose or gain of electrons, when it is in contact with its own ions.
5. Corrosion is a process "reverse of extraction of metals."
6. .... is a measure of capacity of lubricating to stick on to the surface of machine parts under conditions of heavy pressure or load.
7. .... is a technique of identification and separation of mixtures on the basis of adsorption or partition coefficients.
8. .... is the ratio of the equilibrium concentrations of a substance dissolved in two immiscible solvents.
9. .... of a gasoline is the percentage of isooctane in a mixture of isooctane and n- heptane, which matches the gasoline under test in knocking properties.

10. ....state "The fraction of the monochromatic radiant energy absorbed on passing through a solution is directly proportional to the concentration of the absorber."

**II Write short notes on any FIVE questions**

(5 x 2=10)

1. What are the advantages of catalytic cracking
2. Differentiate chemical corrosion and electrochemical corrosion
3. What are the essential requirements of potable water
4. Briefly outline the various methods of moulding of plastics
5. What is Pilling -Bedworth rule. Give examples
6. Write a short note on coal gas
7. How can you prepare Nylon 6:6 , Buna S and Neoprene

**III Write short notes on any FIVE questions**

(5 x 4=20)

1. What are the factors influencing corrosion
2. Give reasons -(i) Glass electrode cannot be used for solutions of PH above 9.0 (ii) Salt bridge is used in the construction of a cell (iii) Electrochemical cell stop working after sometimes
3. What are the properties of plastics .Give a brief account of the moulding of plastics into articles
4. What are the methods used to refine crude oil. What are the fractions obtained from petroleum by fractional distillation .What are their industrial uses
5. Describe the principle ,working and application of gas chromatography
6. What are scale and sludge . What are the methods used to prevent Scale and Sludge formation in boilers
7. What is the cause of corrosion .Give a brief account of the different types of corrosion

**IV Write an essay on any ONE**

(1 x 10=10)

1. Derive Nernst's equation .Write down its applications
2. What is e.m.f an electrochemical cell. Describe the measurement of e.m.f by potentiometer

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