KERALA AGRICULTURAL UNIVERSITY
B.Tech Food Engineering 2019 Admission
I Semester Final Examination-January 2020

Basc.1104 **Engineering Chemistry (2+1)** **Marks:50**
Time: 2 hours

I **Fill in the blanks:** **(10x1=10)**

1. The process of removing common salts from water is called _____.
2. _____ is produced by the degradation of biological matter by the anaerobic bacterial action.
3. In _____ polymerization, the polymer formed is an exact multiple of the original monomeric molecule.
4. _____ can be defined as any combustible substance, which during combustion gives large amount of useful heat.
5. The temperature at which the oil ceases to flow is termed as _____.

State True or false

6. The rate of metallic corrosion increase with increase in temperature.
7. Bakelite is not used in electrical appliances.
8. Emulsification is the property of oils to get intimately mixed with water.
9. The taking up of one substance at the surface of another is referred to as adsorption.
10. Voltmeter can be used in the precise measurement of E.M.F of the galvanic cell.

II **Write Short notes on ANY FIVE of the following** **(5x2=10)**

1. If a sample of water contains 50 mgs of Ca^{2+} ions per litre, calculate the hardness in terms of $CaCO_3$ equivalent.
2. What is knocking? Mention disadvantages of knocking.
3. What are co-polymers? Give one example.
4. What is meant by compounding of plastics?
5. What are the requirements of a lubricant?
6. Explain the principle of UV spectroscopy.
7. What do you mean by reference electrode? Mention any two.

III **Answer ANY FIVE of the following** **(5x4=20)**

1. Explain Zeolite process used for softening of water.
2. Write notes on Fischer Tropsch synthesis.
3. Explain the major types of corrosion.
4. Describe the production of natural rubber.
5. State and Derive Beer-Lambert's law.
6. What is the significance of viscosity index of a lubricant? How can you calculate it?
7. What are the applications of EMF measurements?

IV **Write an essay on ANY ONE of the following** **(1x10=10)**

1. i. Explain the experimental procedure involved in measurement of specific and equivalent conductance.
   ii The specific conductivity of N/50 KCl solution at 25^0C is 0.0002765ohm^{-1}cm^{-1}. If the resistance of the cell containing this solution is 500 ohm, what is the cell constant?
2. Discuss the principle and working of following chromatographic techniques
   i. Paper Chromatography.
   ii. Thin layer Chromatography.
   iii. Gas-liquid chromatography.
   iv. Ion exchange Chromatography.

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