KERALA AGRICULTURAL UNIVERSITY
B.Tech. (Food Engg.) 2017Admission
I Semester Final Examination-January-2018

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

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

1 The shift in the absorption maximum towards longer wavelength side in electronic spectroscopy is called ---------------

2 ------------is used as the indicator in EDTA titration.

3 The electrode potential measured at 298K, 1 atmosphere pressure and 1M concentration is known as------------

4 ------------and------------are the monomers of terylene.

5 ------------is the temperature at which the oil vapours ignites and continues to burn for at least 5 seconds.

State True or False

6 According to Beer-Lambert law, the absorbance by a solute in a transparent solvent is dependent on the intensity of incident light.

7 In HPLC guard column is used to remove particulate matter and contaminants from the solvent.

8 Anodised oxide coatings are used for protection of Al, Zn, Mg and their alloys from corrosion.

9 Cetane number is a measure of the antiknock property of petrol.

10 Paper chromatography is based on the differential partitioning of components of a mixture between the stationary and mobile phases

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

1 Give any two applications of electrochemical series.

2 Gross calorific value of a fuel is 11500 Cal/g if the fuel contains 8% of hydrogen calculate its net calorific value?

3 What is pitting corrosion?

4 Give the expression for viscosity index. Explain the terms?

5 What do you mean by R_f value? Give its significance.

6 Why is buffer added during titration of hard water against EDTA?

7 What is electrodialysis?

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

1 Differentiate between thermoplastics and thermosetting plastics.

2 The resistance of KCl solution taken in a conductivity cell at 25 °C is 300 ohms. The conductivity of this solution at the same temperature is 1.5 X 10^{-3} mho/cm. If a N/10 acid solution gives a resistance of 100 ohms in the same cell, calculate the conductivity of the acid.

3 Describe zeolite process for water softening. Give any two advantages of this method.

4 What do you mean by knocking? How octane number is useful in measuring it.

5 How is corrosion prevented by cathodic protection? Explain with a suitable example.

6   Distinguish between cloud point and pour point. Give their significance.

7   Differentiate between chromophores and auxochromes?

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

1   **(a)** State and explain Kohlrausch's law. Illustrate using a suitable example how this law can be used for the calculation of molar conductance of weak electrolytes at infinite dilution?

       (b) Explain reverse osmosis with the help of a neat diagram.

2.   **(a)** State the principle and applications of GC.

       (b) Discuss different steps involved in sewage treatment

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