



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

Basc.1104

Engineering Chemistry (2+1)

Marks:50
Time: 2 hours
(10x1=10)

I Fill in the blanks:

- 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 electro dialysis?

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 1.5×10^{-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.

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- 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
