

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)
F. E. (ETC/CSE/IT) Examination CBCS
End Semester Examination
BS1003 – ENGINEERING CHEMISTRY

Time: Three Hours

30 NOV 2016

Max. Marks: 60

“Verify the Course Code and check whether you have got the correct question paper”

N.B:-

1. All questions are compulsory
2. Figures to the right indicate full marks
3. Assume suitable data if necessary and state it clearly
4. Use of non-programmable calculator is allowed

Q1. Attempt any Two.

(12)

- i. Explain the method of determination of saponification value of lubricant oil. Give significance of its determination
- ii. Explain Thin film lubrication mechanism with neat diagram.
- iii. Write a note on emulsions.

Q2. Attempt any Two.

(12)

- i. Explain method of determination of Nitrogen in coal. Give significance of its determination
- ii. What is calorific value. Explain Gross and Net calorific value.
- iii. When coal sample of weight 1.020 gm is combusted in bomb calorimeter following results are obtained if fuel contains 4.5 % Hydrogen calculate Gross & Net calorific value.

Data

1. Weight of water in calorimeter = 1700 gm
2. Water equivalent of calorimeter = 580 gm
3. Rise in temperature of calorimeter = 2.85°C
4. Cooling correction = 0.051°C
5. Acid correction = 59.6 cal
6. Fuse wire correction = 1.70 cal

Q3. Attempt any Two.

(12)

- i. What is foaming? Give the method of control of foaming.
- ii. Give any two methods of prevention of scale formation.
- iii. Standard hard water is prepared by 1 gm of CaCO_3 per litre. 50 ml of this water requires 20 ml of EDTA. 50 ml of another hard water requires 25 ml of EDTA. 50 ml of boiled hard water requires 10 ml of EDTA. Calculate all types of hardness of water.

Q4. Attempt any Two.

(12)

- i. Explain termination of addition polymerization by following methods.
 - a. Termination by collision
 - b. Termination by chain transfer agent
 - c. Termination by inhibitors
- ii. Give preparation, properties and uses of Teflon
- iii. What is vulcanization? Explain accelerated sulphur method of vulcanization

Q5. Attempt any Two.

(12)

- i. Explain descending paper chromatography with neat diagram.
- ii. Give principle and applications of colorimetry
- iii. Give an account of Stereochemistry of Tartaric acid with structures.