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Engineering Chemistry - II
(102112)

P. Pages : 2

Time : Three Hours **Max. Marks : 80**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** sub-questions from each unit.
5. Assume suitable data if necessary.
6. Figures to the right indicate full marks.
7. Use of logarithmic table, drawing instruments and non-programmable calculator is permitted.

UNIT – I

1. a) Explain the preparation, advantages and disadvantages of power alcohol. **8**

b) i) Explain the determination process and significance of carbon and hydrogen by ultimate analysis of coal. **4**

ii) The following data were obtained in a bomb Calorimeter experiment : **4**
weight of coal burnt = 0.994 kg
weight of water in calorimeter = 2592 g,
weight of bomb, calorimeter etc = 3940 g,
Rise in temperature of water = 2.732ºC
Mean specific heat of the apparatus = 0.098
Find the gross, calorific value of the fuel. If the fuel contains 8% hydrogen. Calculate its lower calorific value. (Latent heat of condensation of steam = 587 cal/g)

c) i) Explain the characteristics of a good fuel. **4**

ii) The following data were obtained in a Boy's Calorimeter experiment : **4**
Volume of gas used = 0.5m^3,
Weight of water heated = 125 kg,
Temperature of inlet water = 20ºC
Temperature of outlet water = 40ºC
Weight of steam condensed = 0.125 kg
Calculate the higher and lower calorific value per m^3 at S.T.P.

UNIT – II

2. a) Explain the construction and working of Redwood viscometer. **8**

b) i) Describe the mechanism of fluid film lubrication. **4**
ii) Define cloud point and power-point explain the process of determination. **4**

c) i) What do you mean by emulsification. **4**
ii) What are the rules of selecting lubricant to be used in transformers and delicate machines. **4**

UNIT – III

3. a) Explain the preparation, properties and uses of fire clay refractory. **8**

b) i) Write the characteristics of a good refractory. **4**
ii) Explain the preparation and uses of graphic. **4**

c) i) Explain the preparation and uses of dolomite. **4**
ii) Explain the preparation and uses of high alumina refractory. **4**

UNIT – IV

4. a) Define corrosion explain the different types of oxidation corrosion with mechanism. **8**

b) i) Explain pitting corrosion. **4**
ii) Describe the process of galvanizing. **4**

c) i) Explain any one process of cathodic protection. **4**
ii) Differentiate between dry and wet corrosion. **4**

UNIT – V

5. a) Explain the ozone layer depletion process occurring in the stratosphere and what are its ill effect. **8**

b) i) Explain the effects of water pollution. **4**
ii) Write a note on enhanced green house effect. **4**

c) i) Describe the effect of noise pollution. **4**
ii) Explain any two control measure devices used for controlling air pollution. **4**

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