Total number of printed pages – 7

B. Tech

BSCC 2201

Third Semester Examination – 2008

CHEMISTRY – II

Full Marks – 70

Time : 3 Hours

Answer Question No. **1** *which is compulsory and any* ***five*** *from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer in brief : 2×10

   (a) What is zeolite ?

   (b) Which is preferable for sterilization of drinking water : chloramine or chlorine ? Give reason.

P.T.O.

(c) Why is a little steam mixed air used during production of producer gas ?

(d) What do you mean by knocking ?

(e) Why smaller anodes lead tc intense corrosion ?

(f) Why do LDPE and HDPE differ in density ?

(g) What is an elastomer ?

(h) What are the sources of mercury in water ?

(i) What is sewerage ?

(j) Explain how can caustic embrittlement be prevented by addition of sodium sulphate.

2. (a) Discuss about the characteristics of a good fuel. 4

(b) What is water gas ? How is it produced? 4

(c) What is meant by calorific value of a fuel? 2

3. (a) What are the significance of octane number and cetane number ? How can octane number of a fuel be improved ? 4

(b) Why is bromide compound added with TEL ? 2

(c) A fuel has the following composition : C=87%,H=6%,0=2%,S=0.5%,N=0.5% and rest ash. Calculate HCV and LCV of

the fuel. Explain why these values are different. (calorific values : C = 8080 kcal/kg, H = 34500 kcal/kg, S = 2240 kcal/kg). 4

4. (a) Why water used in boiler requires treatment ? 2

(b) What is hardness ? Distinguish between carbonate and noncarbonate hardness. 4

(c) 0.25 gram of $CaCO_3$ was dissolved in HCl and made upto one litre with distilled water. 100 ml of above solution required 50 ml of EDTA solution on titration. 100 ml of hard water required 60 ml of same EDTA solution and 100 ml of boiled hard

water required 20 ml of EDTA solution. Calculate temporary, permanent and total hardness of water. 4

5. (a) Describe ion exchange process. What are the advantages and disadvantages of the process. 4

(b) Discuss how municipal water is purified. 4

(c) What are the advantages of break point chlorination ? 2

6. (a) Discuss about cationic mechanism of polymerisation. 2

(b) Discuss the method of manufacturing and uses of PVC. 4

(c) What are silicones ? Discuss about manufacturing of silicones. 4

7. (a) A pure metal rod is half immersed in water. Where does corrosion start in this case and why ? 2

(b) What is cathodic protection ? Discuss different types of cathodic protection with suitable examples. 4

(c) Discuss about factors that influence corrosion. 4

8. (a) What is green house effect? What are its effects ? 3

(b) Discuss about biological sewage treatment process ? 4

(c) What are the significance of ratio of BOD to COD ? 3