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B. Tech
BSCC 2201

Fourth 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 : 2x10
- (a) Why do we add buffer solution in the
titration of hard water against EDTA ?
Which buffer is used ?

P.T.O.

- (b) Is water softened by zeolite process suitable to be used in boilers ? Explain.
- (c) How can anti-knock properties of fuel be improved ?
- (d) What are the main characteristics of a diesel engine fuel ?
- (e) What are the importances of oxygen in coal ?
- (f) Why is slight warming effect observed when a rubber band is stretched ?
- (g) Can all simple organic molecules produce polymer ? Give reasons to your answer.
- (h) What is sewage ?

- (i) What is green house effect ?
- (j) Which type of metal oxide film is desirable in corrosion prevention ?
2. (a) Compare between liquid fuel and gaseous fuel. 3
- (b) Explain why coke is preferred to coal for metallurgical purpose. 2
- (c) Differentiate between low temperature and high temperature carbonization. Discuss about the beehive oven method. 5
3. (a) What is cracking ? What are the advantages of catalytic cracking over thermal cracking ? 4

(b) What is LPG ? What are its advantages over other fuels ? What are its limitations?

4

(c) Why is calorific value of coal gas more than that of producer gas ?

2

4. (a) What are the disadvantages of scale formation ? Discuss about various internal treatment methods for prevention of scale formation.

5

(b) What are priming and foaming ? How can they be avoided ?

2

(c) How can dissolved oxygen be removed to avoid boiler corrosion ?

3

5. (a) Describe lime soda process. What are the advantages and disadvantages of the process ?

5

(b) 10,000 litres of hard water was treated with zeolite. The exhausted zeolite required a total amount of 9 litres of NaCl solution containing 120 grams / litre of NaCl for regeneration. Calculate the hardness of water.

3

(c) Why is boiled water not always 100% safe for drinking purpose ?

2

6. (a) Distinguish between thermo-plastic and thermo-setting plastic.

3

(b) Discuss the method of manufacturing and uses of nylon 6. 3

(c) Why does natural rubber require vulcanization? Explain vulcanization of rubber. 4

7. (a) Why are galvanized container not used for storage of food products while tin coated ones are used? 2

(b) Discuss how proper designing of equipments prevents corrosion. 4

(c) Discuss about stress corrosion. 4

8. (a) How does the atmospheric ozone depletion occur? What are its effects? 4

(b) How are COD and BOD experimentally determined? 3

(c) What is meant by air pollution? Explain the control of air pollution by an electrostatic precipitator with a neat diagram. 3