

(BRANCH: CHEMICAL)

Wednesday, 30 November 2016

AED	Br	

Time:	3	Hours
-		

Max. Marks: 100

✓ Answer ANY FIVE full Questions.

✓ Write diagrams, equations or examples wherever necessary.

- **1A.** Explain the following giving advantages and disadvantages
 - i) Suspension polymerization ii) Solution polymerization
- 1B. Define Saponification value. How is it experimentally determined? Write its significance in analysis of oils and fats.
- **1C.** Explain the determination of weight average molecular of a polymer by ultra- centrifugal method.

(8+6+6)

- **2A.** Discuss the processing of latex to obtain crepe and smoked rubber.
- **2B.** What is vulcanization? Explain vulcanization process involved in the formation of vulcanizated polyisoprene.
- **2C.** Explain the method of preparation and uses of the following polymers:
 - i) Nitrated cellulose ii) Cellulose acetate

(8+6+6)

- **3A.** What are Antimalarials? Give an account of the chemistry and structure of quinine.
- **3B.** How is petroleum refined of crude oil?
- **3C.** Distinguish between each of the following:
 - i) Soaps and detergents.
 - ii) Thermosetting and thermoplastic polymers.

(8+6+6)

- **4A.** i) Explain the modern continuous process of soap manufacture.
 - ii) Discuss the following reactions as applied to oils and fats:
 - a) Drying of oil **b**) Hydrogenolysis
- **4B.** Polymer molecules with different degree of polymerization such as 500, 750, 850 and 1100 are mixed in molecular ratio 1:2:3:4 in a sample of high polymer of styrene of molar mass 104. Calculate the number average and weight average molecular weight.
- **4C.** Explain the classification of polymers based on their response to heat and end use. Give an example for each.

(8+6+6)

5A. i) Give the chemical structure and write the functions of Chloramphenicol

ii) Write the synthesis and any two uses of sulfacetamide

5B. Derive the copolymerization equation.

5C. Justify the following statements giving proper reason:

- i) Virgin rubber is useless as pure gold.
- ii) The manufacture of soft coconut oil or potassium soaps cannot be carried out by the boiling process.
- iii) Addition of fillers during compounding increases strength of rubber products.

(8+6+6)

6A. i) Explain the manufacture of Vanaspati and mention its uses.

ii) Discuss the classification of synthetic detergents with suitable example.

- **6B.** Give the chemical structure and applications of the following:
 - a) Cellulose nitrite b) Cellulose Xanthate c) Butyl rubber
- 6C. Write a note on reforming of petroleum.

(8+6+6)

- 7A. i) Describe the isolation and structure of starch.
 - **ii**) With a flow chart diagram explain in detail the Ittner process for the production of toilet soaps.
- **7B.** Explain the various sources of fats and oils. Give an account of refining of the same.
- **7C.** Explain the experimental determination of average molecular weight of polymers by viscosity method.

(8+6+6)

- 8A. i) Write a note on behavior of amino acids in an electric field on the basis of its structure.
 - **ii**) Give a brief account of plasticizer and functions. Mention any two examples.
- **8B.** How Penicillin produced on a commercial scale?
- **8C.** Write a note on Biopolymers.

(8+6+6)