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D.K.M.COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1

SEMESTER EXAMINATIONS

NOVEMBER - 2017

15CPCH3D

ELECTIVE: POLYMER CHEMISTRY

Time: 3 Hrs

Max.Marks : 75

SECTION-A (5x 6 =30)

Answer ALL the questions.

1. (a) What are polymers? How are polymers classified on the basis of structure? (6)
(Or)
(b) Write an account on bulk polymerization? Give example. (6)
2. (a) What is glass transition temperature? Discuss the parameters affecting the glass transition temperature? What is its significance? (6)
(Or)
(b) Weight average molecular weight is higher than number average molecular weight explain? (6)
3. (a) Explain the synthesis of graft and block copolymers? Give example? (6)
(Or)
(b) Give a brief account on vulcanization of rubber? (6)
4. (a) Write a short note on physicochemical parameters? (6)
(Or)
(b) Discuss in detail about the extrusion and calendaring process. (6)
5. (a) Explain the natural and synthetic rubber? Give an example for each rubber. (6)
(Or)
(b) What is TEFLON? Write the preparation, properties and uses of TEFLON? (6)

SECTION-B (3x15 =45)

Answer any THREE of the following questions.

6. (a) How are alternate and random copolymers prepared? (5)
(b) Explain in detail about the gas phase polymerization techniques. (5)
(c) Discuss in detail about the kinetics of addition polymerization. (5)
7. (a) Explain the following characterization techniques for polymers. (10)
(i) DSC
(ii) TGA
(b) Explain the term "Dye partition technique? (5)
8. (a) Discuss oxidative degradation of polymers with its mechanism. (10)
(b) What is meant by hydrolysis, acidolysis and cyclisation reactions of polymer? (5)
9. (a) Explain the mechanical properties of polymers? (5)
(b) Describe briefly the industrial applications of polymers in environmental field. (10)
10. (a) Write a note on the following:- (10)
(i) Carbon fibers
(ii) Electrical conducting polymers.
(b) Write a note on phenol formaldehyde resins. (5)

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