

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, Dec 2020

Course: Polymer Chemistry

Program: B.Sc. Chemistry (H)

Course Code: CHEM 3006

Semester: V

Time 03 hrs.

Max. Marks: 100

SECTION A

1. Each Question will carry 5 Marks

2. Instruction: Complete the statement / Select the correct answer(s)

S. No.	Questions	CO
Q 1a.	Properties of low density polythene is -----	CO1
b.	The name of the polymer of given type is-----: —A—A—A—A—A—A—	
c.	Which of the following among is a thermoplastic polymer----- Bakelite, Polystyrene, Urea-formaldehyde resin.	
d.	Suspension polymerization is also called bead/pearl polymerization.(True/False)	
e.	Nylon threads are made up of polyamide polymer.(True/False)	
Q 2 a.	On the basis of mode of formation polymers can be classified as -----	CO2
b.	Pure polymer is produced via the which polymerization technique -----	
c.	----- kind of polymers are known for their high crystallinity.	
d.	Name of two polymer which occur naturally-----	
e.	The monomer formaldehyde having functionality-----	
Q 3 a.	Name three examples of addition polymer.	CO3
b.	The household crockery is prepared from the plastic of -----	

Q4 a.	What is the most important information provided by the glass transition temperature.	CO1
b.	What factors affect the properties of polymers?	
Q5 a.	Can we have a 100% crystalline polymer. Give justification.	CO2
b.	Which polymers are more likely to crystallize?	
Q6 a.	Two important parameter, which decides spontaneous shifting of state.	CO3
b.	According to Flory Huggins theory the entropy of mixing of polymer solution is given by.....	

SECTION B

1. Each question will carry 10 marks

2. Instruction: Write short / brief notes

Q 7 a.	How degree of polymerization effects the mechanical strength of polymer. Explain through graph.	CO2
b.	Discuss the difference between thermoset and thermoplastic polymer.	
Q 8 a.	Discuss the method of determine molecular weight of polymers by viscometer.	CO2
b.	Explain the effect of temperature variation from (low to high) on a polymeric material with emphasis on IBM, EBM and rubbery state.	
Q 9 a.	Compute the number-average molecular weight for a polystyrene for which the degree of polymerization is 26,000.	CO2
b.	In a polymer, there are 100 molecules of molecular weight 100, 200, molecules of molecular weight 1000 and 300 molecules of molecular weight 10,000. Find number average molecular weight, weight average molecular weight and PDI.	
Q10 a.	Write the preparation and application of PMMA	CO3
b.	PAN (orlon)	
c.	PET	
Q11	Discuss the thermodynamics of polymer dissolution.	CO1

SECTION-C

1. Each Question carries 20 Marks.

2. Instruction: Write long answer.

Q 12 a.	Explain the emulsion and suspension polymerization techniques for the preparation of polymer.	CO3
b.	Discuss the conducting polymer as a new class of industrially important polymer and give their types.	
OR		
a.	Explain hoe vulcanization improves the quality of rubber. Explain in detail.	
b.	Describe the chemical reaction for the preparation of bakelite and nylon-6,6.	

