UPES

UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Polymer Engineering   Semester: II
Program: M. Tech (CEPD)   Time 03 hrs.
Course Code: CHPD 7016   Max. Marks: 100

Instructions:
Answer all the questions in Section-A and Section-B

SECTION A

S. No.		Marks
Q 1	Derive the expression for degree of polymerization for free radical addition polymerization	12
Q 2	Discuss the technique of Emulsion Polymerization	12
Q 3	Develop the expressions for stress (σ) and strain (ε) using Maxwell and Kelvin or Voigt model with neat diagram mentioning each variable.	12

Q 4	Write the influence of following parameters that effect crystallinity
	
	    a. Symmetry of repeating unit
	    b. Degree of polymerization
	    c. Increase in size of the repeating unit
		12

Q 5	Discuss shear thinning behaviour of polymers with suitable models.	12
	SECTION B	
Q 6	Derive the rate expression for the condensation polymerization for (a) When catalyst is not added, and (b) when catalyst is added to the reaction mixture	20
Q 7	Discuss Flory-Huggins theory of polymer solutions	20