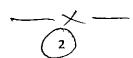
M.Sc. (1st Semester) Surface Coating Technology Examination (CBCS), October 2016 PS01CSCT01: Chemistry and Technology of Oils and Polymer Science

Time: 10:00 am to 1:00 pm		Saturday, 22 nd October 2016	Total Marks: 70		
	Choose the correct answer f	rom the following			
Q.1. 1	The analysis of fatty acid meth detected in laboratory with rout (a) FTIR (b) GPC (C) GC/MS	"	yceride and are often	(1)	
Q.1. 2	At 20°C Castor oil has a viscosity of about poise				
	(a) 1.0 (b) 0.5 (c) 10 (d) 1000				
Q.1. 3	measurement and suitability fo		accurate	(1)	
.		Rotating Disk (d) Falling sphere.			
Q.1. 4	Striking difference between the compound concerns their	ne behavior of a Polymer and that of low	molecular weight	(1)	
	(a) Boiling Point (b) Freezing F	Point (c) Solubility Pattern (d) None of these.			
Q.1. 5	An Mw/Mn value for synthetic p	polymers obtained by free radical chain polyr	nerization with precise	(1)	
	temperature control is				
	(a) 1.5 - 2.0 (b) 2.0 - 5.0 (C) 2.0 - 3.0 (d) 10.0 - 20.0				
Q.1. 6	Anionic polymerization technique	ue is useful to prepare copolymer.		(1)	
	(a) Alternate (b) Block (c) Rand	dom (d) Graft	•		
Q.1. 7	The highest concentration, wh	erein all the molecules are in dispersed st	ate beyond which	(1)	
	only micelle formation is possib	ole is known as			
	(a) CMC (b) PVC (c) CPVC (d)) HEC			
Q.1. 8	Cryoscopy technique is use to	measure average molecular we	eight.	(1)	
	(a) Weight (b) Number (c) Visco	osity (d) Sedimentation Velocity			
Q.2	Attempt <u>any Seven</u> Questions	s:		(14)	
(a)	Write the Structural formulae of	f Elaosteric Acid, Ricinoleic Acid, Linolenic A	cid & Oleic Acid.		
. (b)	Explain the method for measuri	ing Hydroxyl value with chemical reaction.			
(c)	The free radical attack on the m	nonomer initiating polymerization is an exoth	ermic process		
	whereas free-radical formation	by initiator decomposition is an endothermic	process.		
(d)	Justify the statement that "RCC	being non-drying oil can be converted to dr	ying oil".		
(e)	What are initiators and inhibitor	s? Give its example.			
(f)	Distinguish between Anionic and Cationic polymerization techniques.				
(g)	Explain Hydrodynamic Volume	of the polymer molecule in solution under flo	w.		
(h)	In Molecular weight determining	ng techniques, measurement should be do	ne below 1,0 g/dl .		

	concentration, Explain.	
(i)	Static Equilibrium osmometers have become obsolete now a day.	1
Q.3 a	State the source of Castor and Safflower and explain method of extraction of oils from each.	(6)
	Compare these oils with regard to their Color, Specific gravity, R.I, Acid value, Iodine value and Saponification value.	
Q.3 b	·Write about the manufacture of Blown oil and Boiled oil along with its properties and uses.	(6)
	OR	
Q.3 a	Explain the chemistry of drying process for conjugated oil system. How driers do affect the drying process.	(6)
Q.3 b	List the physical and chemical characteristic properties of drying oils and explain each physical property in brief.	(6)
Q.4 a	Write the working principle of <i>falling sphere viscometer</i> method with a neat diagram and derive the equation.	(6)
Q.4 b	Write the manufacturing and mechanism of DCO along with its properties and uses. OR	(6)
Q.4 a	Write the working principle of Efflux and Bubble viscometer method with a neat diagram and derive the equation.	(6)
Q.4 b	How is Acrylated oil produced? State their properties and uses	(6)
Q.5 a	Discuss in detail about Melt and Solution Polycondensation Polymerization technique along with its advantages and disadvantages.	(6)
Q.5 b	With a neat sketch diagram discuss in detail about "All in One" and "Drip feed" solution	(6)
_,	Polymerization technique of a vinyl monomer.	(0)
	OR	
Q.5 a	Distinguish between the Chain Polymerization and Step-Growth Polymerization.	(6)
Q.5 b	Explain the concept of Polydispersibility and its significance.	(6)
Q.6 a	Explain the number average and weight average concept of molecular weight of polymeric material.	(6)
Q.6 b	Draw neat diagram of Ubbelhode Suspended Level Viscometer (USLV) and writes its advantages as compared to Ostwald viscometer.	(6)
	OR	
Q.6 a	Discuss in detail about End Group analysis of the molecular weight determination technique.	(6)
Q.6 b	Elaborate Gel Permeation Chromatography technique used for molecular weight determination of polymer.	(6)



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