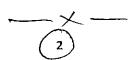
(40) Seat No.:___

SARDAR PATEL UNIVERSITY

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 fr	rom the following		
Q.1. 1	The analysis of fatty acid methy detected in laboratory with routing (a) FTIR (b) GPC (C) GC/MS	"	riglyceride and are often	(1)
Q.1. 2	At 20°C Castor oil has a viscosi			(1)
	(a) 1.0 (b) 0.5 (c) 10 (d) 1000			
Q.1. 3	viscometer is used in coatings and ink industries based on accurate measurement and suitability for Newtonian systems only? (a) Hole Orifice (b) Bubble (c) Rotating Disk (d) Falling sphere.			(1)
Q.1. 4		ne behavior of a Polymer and that of	low molecular weight	(1)
	(a) Boiling Point (b) Freezing Point (c) Solubility Pattern (d) None of these.			
Q.1. 5	An Mw/Mn value for synthetic polymers obtained by free radical chain polymerization 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 techniqu	ue is useful to prepare copolyme	er.	(1)
	(a) Alternate (b) Block (c) Ranc	dom (d) Graft	•	
Q.1. 7	The highest concentration, wherein all the molecules are in dispersed state beyond which			(1)
	only micelle formation is possible is known as			
	(a) CMC (b) PVC (c) CPVC (d) HEC			
Q.1. 8	Cryoscopy technique is use to r	measure average molecular	·weight.	(1)
	(a) Weight (b) Number (c) Viscosity (d) Sedimentation Velocity			
Q.2	Attempt any Seven Questions	s:		(14)
(a)	Write the Structural formulae of	Elaosteric Acid, Ricinoleic Acid, Linoleni	c Acid & Oleic Acid.	
. (b)	Explain the method for measuring	ng Hydroxyl value with chemical reaction	ı.	
(c)	The free radical attack on the monomer initiating polymerization is an exothermic process			
	whereas free-radical formation by initiator decomposition is an endothermic process.			
(d)	Justify the statement that "RCO	being non-drying oil can be converted to	drying oil".	
(e)	What are initiators and inhibitors	s? Give its example.		
(f)	Distinguish between Anionic and Cationic polymerization techniques.			
(g)	Explain Hydrodynamic Volume	of the polymer molecule in solution unde	r flow.	
(h)	In Molecular weight determinin	g techniques, measurement should be	done below 1.0 g/dl .	
	•			

www.gujaratstudy.com concentration, Explain. (i) Static Equilibrium osmometers have become obsolete now a day. 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 (6) process. Q.3 b List the physical and chemical characteristic properties of drying oils and explain each (6)physical property in brief. Q.4 a Write the working principle of falling sphere viscometer method with a neat diagram and derive (6)the equation. Write the manufacturing and mechanism of DCO along with its properties and uses. (6)OR Write the working principle of Efflux and Bubble viscometer method with a neat diagram and (6)derive the equation. Q.4 b How is Acrylated oil produced? State their properties and uses (6)Discuss in detail about Melt and Solution Polycondensation Polymerization technique along with (6)its advantages and disadvantages. 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. 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 (6)material. Q.6 b Draw neat diagram of Ubbelhode Suspended Level Viscometer (USLV) and writes its advantages (6)



OR

Elaborate Gel Permeation Chromatography technique used for molecular weight determination of

(6)

(6)

Q.6 a Discuss in detail about End Group analysis of the molecular weight determination technique.

as compared to Ostwald viscometer.

polymer.