

## M.Sc. Sem.-4 Examination

507

## Polymer Science

April-2025

Time : 2-30 Hours]

[Max. Marks : 70

*General instructions*

1. All questions are compulsory
2. Draw neat figure where ever necessary

Q.1	(a)	Write down behavior of filled and reinforced Polymers?	07
		OR	
Q.1	(a)	Explain – Kelvin / Voigt model for flow behavior of polymeric materials	07
Q.1	(b)	Write a note on Heat deflection temperature	07
		OR	
Q.1	(b)	Explain the Shear and tear Strength of Plastic material, what is the Difference between shear and tear strength?	07
Q.2	(a)	Explain all types of optical properties?	07
		OR	
Q.2	(a)	Explain – Maxwell model for flow behavior of polymeric materials.	07
Q.2	(b)	Write down classification of mechanical properties and explain Tensile, Flexural and Compressive properties of materials?	07
		OR	
Q.2	(b)	What is HDT & VST explain? Give the difference between HDT & VST.	07
Q.3	(a)	How are various specimens for polymeric testing prepared? Write a note on various types of samples used in tensile testing.	07
		OR	
Q.3	(a)	Explain Creep and stress relaxation? What is difference between both?	07
Q.3	(b)	Short notes ESCR, Water absorption, MFI and brittleness temperature?	07
		OR	
Q.3	(b)	What is impact resistance? Write the types of impact tests and explain any 1 in detail with diagram.	07
Q.4	(a)	What is izod and Charpy impact test and what is difference between izod and Charpy impact test?	07
		OR	
Q4	(a)	Define Refractive index. How is refractive index calculated? Explain in detail.	07
Q4	(b)	Explain product testing as per IS 4984:2016?	07
		OR	
Q4	(b)	Explain product testing as per IS 4984:2021?	07

(P.T.O.)

		Attempt Any Seven	14
Q.5	1.	ASTM Standard for izod impact Test IS _____ ?	2
	a	638	
	b	790	
	c	149	
	d	256	
	2.	The position of dashpot and spring in Maxwell model is _____ ?	2
	a	Parallel	
	b	Serial	
	c	Wheatstone bridge	
	d	None of the above	
	3.	Full form of VSP is _____ ?	2
	a	Vicat Softening point	
	b	Vicat Softening pressure	
	c	Vicat Strength point	
	d	Very Soft Polymer	
	4.	Arc is _____ property	2
	A	Mechanical	
	B	Electrical	
	C	Thermal	
	D	Rheological	
	5.	Full form of VSP is Vicat Strength point? (True / False)	2
	6.	Die Diameter of MFI is 3mm (True / False)	2
	7.	Define haze. Gloss and clarity.	2
	8.	Write down the test name of rheological properties?	2
	9.	What is the Abbreviation of ODR, MPT, ESCR?	2
	10.	ASTM-D-570 used for conditioning? (True / False)	2
	11.	Why we are using standard for product testing?	2
	12.	Melt Flow Index is rheological properties ? (True / False)	2

Best of Luck

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