

April – May 2022 (B.Tech) Program: FE Examination: FY Semester: II Course Code: 1UBSC203 Course Name: Material Chemistry Duration: 02 Hours Max. Marks: 45				
Instructions: (1) All questions are compulsory. (2) Draw neat diagrams wherever applicable. (3) Assume suitable data, if necessary. B.Tech._FY_II_1UBSC203_QP_C				
		Max. Marks	CO	BT level
Q 1	Solve <b>any five</b> questions out of six	15		
i)	What are Shape Memory Alloys? Write any two important applications.	3M	1	2
ii)	Explain how fine powder of silicon carbide is produced?	3M	1	2
iii)	With suitable examples explain why plasticizers are added during manufacturing of plastic?	3M	1	2
iv)	An alloy of tin and lead contains 70% tin. Find the mass of eutectic in 1 kg of alloy if the eutectic contains 52% of tin?	3M	2	3
v)	What is alloy? Write the purposes of making alloys.	3M	1	2
vi)	Give brief account of laminar composites and write any two important applications.	3M	1	2
Q.2	Solve <b>any three</b> questions out of four.	15		
i)	Explain the term 'Liquid Crystal Polymers' and write their important applications.	5M	1	2

ii)	What are whiskers and why are they important?	5M	1	2
iii)	Write the composition, important properties and uses of Magnalium and German silver.	5M	1	1
iv)	Draw a neat diagram of Pb-Ag system and explain the application of Condensed Phase Rule to it.	5M	3	3
<b>Q.3</b>	Solve <b>any three</b> questions out of four.	<b>15</b>		
i)	Draw a neat diagram and explain how the fiber reinforced composite materials are processed by pultrusion?	5M	3	2
ii)	Composition of a polymer synthesized is as follows : 10% molecules have molecular weight 2000, 20% molecules are of molecular weight 3000, 30% molecules of molecular weight 4000 and 40% molecules have molecular weight 6000. Calculate the number and weight average of molecular weight and polydispersity index of polymer.	5M	1	2
iii)	What is Powder Metallurgy? List various steps involved in powder metallurgy process and explain only the significance of each of the steps involved in.	5M	3	2
iv)	Draw a neat diagram of one component water system and explain the validity of Gibb's phase rule to it.	5M	2	3

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