Subject Code: **1UBSC203**   Subject Name: **Material Chemistry**   Date: 31/05/2021

May - June 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.

		Question	Max. Marks	CO	BT level
Q 1		Solve **any five** questions out of six	**15**		
	i)	Differentiate between Thermoplastic and Thermosetting Polymers.	3M	1	1
	ii)	Write a short note on Laminate Composites.	3M	1	2
	iii)	In powder metallurgy, how fine powder is prepared by Atomization process.	3M	3	2
	iv)	What are ceramics? State their advantages and applications.	3M	1	2
	v)	Write the number of phases in the following systems. (a) Mixture of oxygen and nitrogen. (b) Ice and water system. (c) Ethyl alcohol and water	3M	2	3
	vi)	Explain the role played by plasticizers and lubricant in compounding of plastic.	3M	3	2
Q.2		Solve **any three** questions out of four.	**15**		
	i)	A polymer has following composition: 100 molecules of	5M	1	3

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		molecular weight 2000, 200 molecules of molecular weight 2500, 300 molecules of molecular weight 3000 and 500 molecules of molecular weight 5000. Calculate the number and weight average of molecular weight and polydispersity index.			
	ii)	What are the applications of composite materials in different Engineering fields?	5M	3	2
	iii)	What is powder metallurgy? Explain powder injection moulding method of compaction.	5M	3	1
	iv)	Draw and explain a phase diagram of one component water system.	5M	2	3
Q.3		Solve **any three** questions out of four.	15		
	i)	How are ceramics produced? Explain general methods with examples.	5M	3	2
	ii)	Write a short note on Extrusion molding of plastic.	5M	3	2
	iii)	What is plain carbon steel? How are they classified? What are their limitations?	5M	1	2
	iv)	500 kg of sample of argentiferrous lead containing 0.1% silver is melted and then allowed to cool. If eutectic contains 2.7% of silver, what mass of (i) mass of eutectic will be formed and (ii) mass of lead will separate out?	5M	2	3

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