

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Subject Code: BSC203

Subject Name: Material Chemistry

Date: 31/07/24

May - June 2024

(B.Tech) Program: FY

Supplementary Examination: FY Semester: II Scheme II

Course Code: BSC203 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.

		Max. Marks	CO	BT level
Q.1	Solve any five questions out of six	15		
i)	What are the conducting polymers? Write only name of the different conducting polymers.	3M	1	1
ii)	Explain the method to synthesize ceramic silicon carbide.	3M	1	2
iii)	An alloy AB of 10 g weight contains 25% of A. The molten AB on cooling gave out B and a eutectic alloy with A and B with equal percentage. What is the amount of B that has been formed?	3M	3	3
iv)	What is sintering? Write its stages.	3M	3	1
v)	Write the difference between thermoplastics and thermosetting plastics.	3M	1	1
vi)	Write the classification of composite materials.	3M	1	2
Q.2	Solve any three questions out of four.	15		
i)	What are the characteristics of particle reinforced composite materials? Write their examples with properties.	5M	1	2

ii)	A polymer has following composition: 110 molecules of molecular weight 2100, 210 molecules of molecular weight 3100, 310 molecules of molecular weight 4100 . Calculate the number and weight average of molecular weight and polydispersity index	5M	1	3
iii)	Explain with the help of a neat diagram how the fiber reinforced composite materials are processed by filament winding process?	5M	3	2
iv)	Draw the phase diagram of water system and explain.	5M	2	3
Q.3	Solve <u>any three</u> questions out of four.	15		
i)	What are the roles of plastisizers and fillers during the moulding operation?	5M	3	1
ii)	Write composition, properties and uses of High Phosphorus Bronze and Tinman's Solder.	5M	1	1
iii)	What is Gibb's phase rule? What are its limitations?	5M	2	3
iv)	With a neat diagram explain transfer molding of plastic.	5M	3	2
