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

May-June 20_25_ / Nov – Dec 20_ July-Aug 20__ / Feb– March 20__
(B.Tech / M.Tech.) Program: __B.Tech_____Scheme I/II/IIB/III: III / II
Regular/Supplementary Examination: FY Semester: II
Course Code: BSC203_____and Course Name: _Material Chemistry__
Date of Exam: 06/06/2025 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 5 questions out of six.	15		
i)	What are the applications of the liquid crystal polymers?	3	1	2
ii)	Write composition, properties and uses of German silver.	3	1	2
iii)	Write the classification of composite materials.	3	1	1
iv)	An alloy of tin and lead contains 82% tin. Find the mass of eutectic in 1kg of alloy if the eutectic contains 64% of tin?	3	2	2
v)	What is sintering? Write the stages of sintering.	3	3	2
vi)	What is Chemical shift in NMR spectroscopy? How is it calculated?	3	4	2
Q.2	Solve any three questions out of four.	15		
i)	Calculate weight and number average molecular weight of the polymer .110 molecules have molecular mass 2400,120 molecules have molecular mass 3000,140 molecules have molecular mass 3100,160 molecules have molecular mass 3500 and 180 molecule have molecular mass 3700.	5	1	2
ii)	What are sandwich panel composites? Explain with a neat labeled diagram. Where are they used?	5	1	2
iii)	What is powder metallurgy? Explain cold isotactic pressing with the help of a labeled diagram.	5	3	2

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iv)	Write the applications of IR spectroscopy.	5	4	3
Q.3	Solve any three questions out of four.	15		
i)	What are the effects of Mo, Co, Ni, Si, Cr, V and W in alloy steel?	5	1	2
ii)	What are the roles of plastisizers and fillers during the moulding operation of plastics?	5	3	2
iii)	Apply the condensed phase rule in two component system Pb-Ag	5	2	3
iv)	Predict the high resolution spectra of methyl ethyl ketone and 1 propanol.	5	4	2

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