(18)

May-June 2024
(B.Tech.) Program: All Branches   Scheme : III
Supplementary Examination: FY   Semester: II
Course Code: BSC203 and Course Name: Material Chemistry
Date of Exam: 31/05/24   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 role of fillers and stabilizers during moulding operation? Which substances are used as fillers and stabilizers?	3M	3	2
ii)	What are the functions of matrix phase?	3M	1	2
iii)	How the metal powder is obtained by electrodeposion process?	3M	3	2
iv)	What are limitations of plain carbon steels?	3M	1	1
v)	An alloy of tin and lead contains 78 % tin. Find the mass of eutectic in 1 kg of alloy if the eutectic contains 64% of tin?	3M	2	3
vi)	Predict the NMR spectrum of $CH_3 - CH_2 Br$	3M	4	3
Q.2	Solve **any three** questions out of four.	**15**		
i)	How the fiber reinforced composite materials are processed by pultrusion process? Explain with a neat diagram.	5M	3	3
ii)	What are bio polymers? How are they classified? Give examples of some bio polymers.	5M	1	2
iii)	What is powder metallurgy? How are metal powders prepared by process of reduction?	5M	3	2

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iv)	Calculate the number average and weight average molecular masses of polyvinyl chloride polymer with following composition: $[-CH_2-CHCl-]_{500}$ is 40% ; $[-CH_2-CHCl-]_{400}$ is 60% Given that atomic mass of C=12, Cl=35.5, H=1	5M	1	3
Q.3	Solve **any three** questions out of four.	**15**		
i)	Write the composition, properties and uses of German Silver and Tinman's solder	5M	1	1
ii)	What is Gibb's phase rule? Apply it to one component system water.	5M	2	3
iii)	What are ceramics? State their characteristics properties. Give method of synthesis of alumina.	5M	1	2
iv)	What is the significance of fingerprint region explain in detail with example?	5M	4	3

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