



12. a)	Illustrate the construction and electrochemistry of Lead acid battery. Write the effects of overcharging of the battery.	4	2	2	1,2,7
b)	List the characteristics required for the selection of a good battery. Discuss any three characteristics for a good battery.	4	3	2	1,2,7
13. a)	Explain the method to manufacture the composite materials by Resin transfer method (RTM) with a labeled diagram.	4	1	3	1,7
b)	Polymer is not having fixed molecular mass whereas simple molecules have fixed mass-Reason. A polymer sample contains the following composition: 15 molecules have the molecular mass each is 7500 25 molecules have molecular mass each is 12500 30 molecules have molecular mass each is 17500 30 molecules have molecular mass each is 22000 Calculate the number average and weight average molecular mass.	4	3	3	1,2
14. a)	Define CNTs and discuss the synthesis of carbon nano tubes by Laser ablation method.	4	1	4	1
b)	What are liquid crystals and list the conditions required to exhibit liquid crystalline behavior by molecules and classify them.	4	2	4	1
15. a)	Suggest and discuss a method to determine the concentration of metal ion present in a given solution by absorption spectroscopy with a neat labeled block diagram.	4	3	5	1
b)	Write the decomposition reactions of Calcium oxalate as a function of temperature and discuss the working principle of thermogravimetry.	4	2	5	1,2
16. a)	Discuss the construction and chemistry of calomel electrode and prove that its potential depends upon the concentration of KCl solution.	4	3	1	1
b)	Describe the chemistry of Zn-Carbon battery with a net labeled figure. Why this battery can't be rechargeable? Reason.	4	3	2	1,7
17.	Answer any <i>two</i> of the following:				
a)	Differentiate thermosofts and themosets and give one example for each.	4	1	3	1,7
b)	Illustrate the synthesis of nanomaterials by ball milling method.	4	2	4	1
c)	Explain the working principle of Atomic force microscope (AFM) with a labeled block diagram and list any two differences between SEM and AFM.	4	2	5	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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