

**DEPARTMENT OF SCIENCES, IV SEMESTER M.Sc. (Chemistry)**  
**END SEMESTER EXAMINATIONS, APRIL 2023**  
**Materials Chemistry [CHM 6001]**  
**(CHOICE BASED CREDIT SYSTEM - 2021)**

Time: 3 Hours

Date: 26 / 04 /2023

MAX. MARKS: 50

Note: Answer all the questions.

Q. No.	Description	M	CO	BL
1.A.	Discuss the applications of nanomaterials in catalysis and in polymer architectures	5	5	3
1.B.	Explain the secondary bonds and their influence on materials properties with suitable examples.	5	1	2
2.A.	Explain, how big the nano scale is on comparison with other objects of various sizes? Why the nano scale materials are so important?	5	5	4
2.B.	What are the different types of cements? Explain the setting and hardening of the cement with chemical reactions.	5	2	2
3.A.	Describe the various types of carbon nanotubes and their characteristic properties.	5	5	2
3.B.	What are the required characteristic properties of liquid crystals (LCs) for their applications? Explain the principle of LC thermometers.	5	3	4
4.A.	List out the components of Scanning Electron Microscope (SEM). Explain the working of SEM with a neat diagram.	5	5	2
4.B.	Discuss the advantages and disadvantages of chemical vapour deposition (CVD) technique.	5	4	2
5.A.	Discuss the various steps of Sol-Gel process for the preparation of nanomaterials and its advantages.	5	5	2
5.B.	Write the physical and chemical properties of metals.	5	2	2

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