

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 19

M.Sc (Chemistry) (PIT) (Sem.-2)

CHEMISTRY OF MATERIALS

Subject Code : CHL-416A

M.Code : 51153

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying FIVE marks each and students have to attempt ALL questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Cite two examples of thermotropic liquid crystals.
2. Why SiO₂ readily forms a glass?
3. Write down the electrical characters of the following monoxides of 3d metal :

NiO_x, CuO_x.
4. Define glass transition temperature.
5. Mention two examples of spinel.
6. Why solvothermal technique is used to synthesize metal organic framework (MOF) materials?
7. Write down two examples of thermochromics materials.
8. Why the electrical conductivity of carbon nanotubes (CNTs] are unusually high?
9. What is the general formula of perovskite and zeolites?
10. What is meant by extrinsic semiconductor? Give example.

SECTION-B

11. Draw schematically and explain the molecular arrangements in various states of liquid crystals.
12. Explain the how the super conductivity of material depends upon temperature?
13. Is $M_nCr_2O_4$ likely to have a normal spinel or inverse spinel? Explain.
14. FeO is semiconductor while VO is metallic conductor-Why?
15. What is bukcminster fullerene? Give the structural features of fullerene.
16. What are the properties of inorganic pigments?

SECTION-C

17. Write a short note on following: Silicates, High temperature superconductor.
18. Discuss the composition and structure of zeolites.
19. Briefly discuss about the materials used in light emitting diodes and their applications.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.