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**School of Basic Sciences**  
**Bachelor of Science Honours in Physics**  
**Semester End Examination - Nov 2023**

**Duration : 180 Minutes**  
**Max Marks : 100**

**Sem V - C1UD503T - Nanomaterials and Characterization Techniques**

General Instructions

*Answer to the specific question asked*

*Draw neat, labelled diagrams wherever necessary*

*Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Define nanotubes K1 (2)
- 2) Illustrate in detail molecular beam epitaxy (MBE) in nanomaterial synthesis. K2 (4)
- 3) Draw the ray diagram for the working of transmission electron microscope. K2 (6)
- 4) Draw the schematic of Chemical vapour deposition. K3 (9)
- 5) What is physical vapour deposition? Explain K3 (9)
- 6) Discuss the the purpose of a spectrometer? K5 (10)
- 7) Analyse the role of nanotechnology in environment and space. K4 (12)
- 8) Evaluate in detail about the electrical, optical, thermal, and mechanical properties of nanostructured materials K5 (15)
- 9) Discuss the Classification of Nanomaterials in detail. K5 (15)
- 10) Make short note on : (i) Photoluminescence Spectroscopy (ii) Fourier Transform infrared spectroscopy K6 (18)