

M.Sc. S.Y. (Physics) (C.B.C.S. Pattern) Sem-IV
PSCPHYT15.2 - Paper XV (Core Elective E 2.3)
Nanoscience and Nanotechnology-II

P. Pages : 1

Time : Three Hours



GUG/W/19/11416

Max. Marks : 80

- 1.** Either:
- a) Describe the principle and applications of phototherapy lamps. **8**
 - b) What is the role of nanomaterials in TL dosimetry? How the nano size of the materials affect TL properties. **8**
- OR**
- e) What are the advantages and disadvantages of CFL lighting devices? **8**
 - f) Write in detail on optical stimulated luminescence. **8**
- 2.** Either:
- a) Explain the effect of bulk nano structural materials on magnetic properties. **8**
 - b) What is magnetoresistance? Explain the difference between giant and colossal magnetoresistance. **8**
- OR**
- e) What is ferromagnetism? Discuss the effect of grain size on ferromagnetic domain. **8**
 - f) What are nanopore? Explain blocking temperature T_B . **8**
- 3.** Either:
- a) Explain the construction of nanoscale MOSFET? What is CMOS Statue. **8**
 - b) Explain the importance of inter connect? How interconnect technology works. **8**
- OR**
- e) Discuss nanowire field effect transistor. **8**
 - f) Explain carbon nanotube transistor with its two applications. **8**
- 4.**
- a) Give an account of synthesis of one dimensional conducting polymer. **8**
 - b) Discuss applications and properties of fullerene. **8**
- OR**
- e) What are nanocomposites? Describe tribology of polymer nanocomposites. **8**
 - f) Describe LASER evaporation technique for synthesizing carbon nanotubes. **8**
- 5.**
- a) What is optical simulated luminescence. **4**
 - b) Explain Spintronics. **4**
 - c) Differentiate between top down and bottom up approach. **4**
 - d) State and explain applications of graphene? **4**
