

M.Sc. (Physics) (CBCS Pattern) Semester-IV
**PSCPHYT15.2 - Core Elective E2.3 - Paper-XV - Nanoscience and
Nanotechnology-II**

P. Pages : 1

Time : Three Hours



GUG/W/24/11416

Max. Marks : 80

Either:

1. a) What are phototherapy lamps? State its applications. 8
b) Write brief note on LEDs and CFLs. 8

OR

- e) How the TL properties vary if the size of the material reduces to nanosize. Explain. 8
f) Write note on optical stimulated luminescence. 8

Either:

2. a) What are ferrofluids. State its application. 8
b) Write a note on Giant magnetoresistance. 8

OR

- e) What is nanopore confinement? Explain blocking temperature. 8
f) Describe the dynamics of nanomagnets. 8

Either:

3. a) Describe the working of CMOS. 8
b) Explain nanowire field effect transistor. 8

OR

- e) How carbon nanotubes are used in memory devices. 8
f) Describe the working and principle of single electron transistor. 8

Either:

4. a) Describe the classification of nanocomposites. Explain in brief polymer nanocomposites. 8
b) Does the addition of nanofillers improve the performance in polymer? Illustrate with example. 8

OR

- e) Explain the synthesis technique for graphene polymer nanocomposite. 8
f) State and explain the applications of CNT polymer nanocomposites. 8

5. Attempt all the followings.
a) Write a short note on x-ray imaging nanophosphors. 4
b) Describe spintronics. 4
c) Explain top-down and bottom-up approach. 4
d) Explain the tribology of polymeric nanocomposites. 4
