M.Sc. (Physics) Fourth Semester Old

# MSC24107 – Optional Paper-V - Nanoscience & Nanotechnology-II

P. Pages : 1 **GUG/W/18/2424**

Time : Three Hours * 1 8 9 5 * Max. Marks : 80

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**1.** Either

a) What is Dosimetry? Define thermoluminescence. Explain Dosimetry for Thermoluminescence. **8**

b) Explain X-ray imaging nano-phosphorus . **8**

**OR**

e) Explain the various types of luminescence and its method of characterization. **8**

f) Explain Display Devices. State different types of technologies of display Devices. **8**

**2.** Either

a) Write a note on nanopore containment of magnetic particles? **8**

b) State and explain application in Data storage. **8**

**OR**

e) State the difference between GMR and CMR. **8**

f) Discuss the effect of bulk nano-structuring on magnetic properties. **8**

**3.** Either

a) Explain the working of vertical MOSFET with diagram. **8**

b) Discuss Nanowire field effect Transistor. **8**

**OR**

e) Explain the terms. **8**

i) Single electron transistor. ii) CMOS scaling.

f) Draw schematic diagram of single electron transistor and Explain its working. **8**

**4.** Either

a) Discuss one dimensional conducting polymer nano composites and their application. **8**

b) Discuss application and properties of fullerene. **8**

**OR**

e) Briefly explain MEMS. **8**

f) State and explain different application of conducting polymer. **8**

**5.** Answer the following.

a) State the application of LED. **4**

b) Explain the term Magneto optics and spintronics. **4**

c) Discuss interconnect. **4**

d) Explain ceramic nanocomposites. **4**

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