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GIET UNIVERSITY, GUNUPUR - 765022

Ph.D. (First Semester) Examinations, January - 2024

23SPPEEC1011 -Nanomaterials and Nanotechnology (ECE)

Time: 3 hrs

Maximum: 70 Marks

The figures in the right hand margin indicate marks.

Answer ANY FIVE Questions

(14 x 5 = 70 Marks)

Marks

1. Explain the application of nanomaterial in textile, electronics, construction, and biotechnology. Give two example in each case that highlight the specific advantage of nanomaterial. 4+10
2. Explain the difference between bulk material and nanomaterials. Discuss the reason behind interesting properties. 4+10
3. Explain the lithography process in detail. Discuss different types of photoresist used for MEMS fabrication. 14
4. Explain the method to synthesize silver nanoparticle. Discuss its size dependent properties from nanoscale to microscale. 6+8
5. What is the process of synthesising carbon nanotube? Explain different types and properties of carbon nanotube. 14
6. Explain the fabrication steps for development of n-MOSFET. 14
7. Describe the role of nanoscale devices and quantum dots in the development of quantum computers and their potential impact on cryptography and computational science? 14
8. Explain the non-equilibrium Green's functional approach for modelling two-dimensional system, by taking a suitable two-dimensional material. 14

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