

M.Sc.(Physics) (CBCS Pattern) Semester - IV
PSCPHYT15.2 - Optional Paper-VII : Nanoscience and Nanotechnology -II

P. Pages : 2

Time : Three Hours



GUG/S/23/11416

Max. Marks : 80

Either :-

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|----|----|---|---|
| 1. | a) | What are OLEDs? | 4 |
| | b) | Explain the advantages of OLED over CFLs and LEDs. | 4 |
| | c) | Describe the principle and application of phototherapy lamps. | 8 |

OR

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| e) | Explain X-ray imaging and identification of phases in materials. | 8 |
| f) | What is luminescence? Explain the different types of luminescence. | 8 |

Either :-

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| 2. | a) | Explain effect of bulk nano structuring of magnetic properties. | 8 |
| | b) | Explain ferromagnetism and superparamagnetism in terms of Nanomagnetic. | 8 |

OR

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|----|---|---|
| e) | Explain the terms. | |
| | i) Magneto optics | 4 |
| | ii) Spintronics | 4 |
| f) | Explain the use of nanomagnets in data storage. | 8 |

Either :-

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| 3. | a) | Discuss nanowire Field effect transistor in detail. | 8 |
| | b) | Explain the terms: | 8 |
| | i) | Carbon nanotube transistor. | |
| | ii) | FINFETs. | |

OR

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| e) | Explain in details on Memory Devices. | 8 |
| f) | Draw a schematic Diagram of single electron transistor and explain its working. | 8 |

Either :-

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| 4. | a) | What are nanocomposites? Describe tribology of polymer Nanocomposites. | 8 |
| | b) | Discuss properties of fullerene & its applications. | 8 |

OR

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|-----------|------|--|----------|
| | e) | Discuss the properties and applications of Graphene. | 8 |
| | f) | Describe the properties of polymer nanocomposites. | 8 |
| 5. | | Attempt all the following: | |
| | i) | What is optical stimulated luminescence (OSL)? | 4 |
| | ii) | What is nano spore confinement? Explain it. | 4 |
| | iii) | What is quantum tunneling? Explain. | 4 |
| | iv) | Explain ceramic nano materials. | 4 |
