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Question Paper Code: 53965

Ph.D COURSE WORK EXAMINATION, JUNE 2016

Elective

Technology

15PPH103 - SYNTHESIS AND APPLICATIONS OF NANOMATERIALS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 20 = 100 Marks)

1. (a) Discuss in detail with neat diagram ball milling method and sol-gel technique for the production of nanoparticles. (20)

Or

- (b) Discuss briefly the synthesis process of nanopolymers and nanocomposites. (20)

2. (a) Explain any two template assisted methods for the growth of nanostructures. (20)

Or

- (b) Elaborately discuss any two biomimetic techniques for synthesis of nanoparticles. (20)

3. (a) Define the term epitaxy. With neat diagram explain both molecular beam epitaxial technique and metal organic vapour phase epitaxial technique for the production of nanoparticles. (20)

Or

- (b) (i) Discuss e-beam writing and scanning probe patterning process using micro lithography. (10)
- (ii) Discuss magnetron sputtering technique for synthesizing nanoparticles. (10)
4. (a) Write short notes on
- (i) Nanoporous materials with few examples (10)
- (ii) Nano membranes (5)
- (iii) Carbon nanotubes (5)

Or

- (b) (i) Discuss briefly on silver halide photography and transparent conducting oxides. (10)
- (ii) Write short notes on smart sunglasses and nanosponges. (10)
5. (a) (i) Explain the principle and working of organic field effect transistor with neat diagram. (10)
- (ii) Discuss the biological applications of nanomaterials. (10)

Or

- (b) What are photonics? Discuss the principle, design and working of single electron transistor. (20)
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