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**Question Paper Code: 52913**

M.E. DEGREE EXAMINATION, DECEMBER 2015

Elective

CAD / CAM

15PCD521 - SYNTHESIS AND CHARACTERIZATION OF NANO MATERIALS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

(5 x 20 = 100 Marks)

1. (a) Explain the process of Solgel processing for particle preparation and thin film coating in detail. (20)

Or

- (b) Explain in detail about nano composite materials. (20)

2. (a) Write short notes on

(i) Self-assembled mono layers (7)

(ii) Langmuir-Blodgett (LB) films (7)

(iii) Emulsion polymerization. (6)

Or

- (b) List the electrochemical approaches used for synthesis of nano materials and explain any two methods in detail. (20)

3. (a) List the types of epitaxial growth techniques and explain any two methods in detail. (20)

Or

- (b) What is meant by micro lithography and explain in detail about photolithography and soft lithography. (20)
4. (a) With neat sketch explain the synthesis of carbon nano tubes. (20)

Or

- (b) Write short notes on
- (i) AgX phtography (7)
  - (ii) Smart sunglasses (7)
  - (iii) Transparent conducting. (6)
5. (a) List the characterization methods available for nanophase materials and give the advantages and applications of
- (i) Scanning electron microscope
  - (ii) Transmission electron microscope. (20)

Or

- (b) Explain in detail about optical spectroscopy for semi conductor nanoparticles and give its advantages. (20)