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Question Paper Code: 53967

Ph.D COURSE WORK EXAMINATION, JUNE 2016

Course Work

15PPH106 – IMAGING TECHNIQUES FOR NANOTECHNOLOGY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 20 = 100 Marks)

1. (a) What are uses of the polarized microscopy? Explain with neat diagram about interference microscopy. (20)

Or

- (b) Explain the surface microscopy and etch pit density and hardness measurements. (20)

2. (a) What is mean by the scanning electron microscopy? Explain the mode of operation and Backscattered electrons and secondary electron SEM? (20)

Or

- (b) How can you specimen preparation by using SEM and list out the various applications of scanning electron microscopy. (20)

3. (a) Define basic principle of TEM? Explain the different mode of operation and specimen preparation by using transmission electron microscopy. (20)

Or

- (b) What is mean by crystals dislocation? Explain the crystal structure of grain boundaries and HRTEM use in nanostructures. (20)
4. (a) Explain the AFM tip on nanometer scale structures, force curves, measurements and manipulation and mention that feedback control different modes of operation. (20)

Or

- (b) Write short notes of (i) Scanning force microscopy (ii) Shear force microscopy (iii) Lateral Force microscopy (iv) Magnetic force microscopy. (20)
5. (a) What is the principle of scanning tunneling microscopy? Describe the construction and working of STM? Write the importance of STM for nanostructure. (20)

Or

- (b) How can you molecular manipulation using STM? Explain 3-D map of electronic Structure. (20)
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