

College of Engineering, Pune
END Semester Exam – Nov. 2011

S. Y. B. Tech.

Advanced Engineering Materials (ILOE)

Day & Date- Saturday, 19th Nov. 2011
Maximum Marks: 50

Time: - 8 AM-11AM
Duration – 3 hrs.

Instructions:

- 1 Solve all the questions
- 2 Figure to right indicates full marks.
- 3 Do not keep mobile phones with you; the handsets will be permanently retained by exam cell.
- 4 Draw figures where ever necessary

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- Q. 1 A. What do you understand by Microstructure, Macrostructure, Substructure and crystal structure. 4
- B. Why X-ray powder diffraction is most suitable method for identification of crystalline solid explain with suitable example. 4
- C Explain the difference between phase transformation and physical state transformation with suitable example. 2
- Q. 2 A. Explain the process of electrical resistance and conductance on the basis of band theory of solids. 3
- B What are major limitations of plastic and polymers. 3
- B Write a note on superconductors 4
- Q. 3 A. Explain magnetic bubble memory devices. 3
- B Explain different varieties of Commercial polymers and their applications. 7
- OR
- B Explain different materials used in electronic components as sensors, actuators and resistive heaters. 7
- Q. 4 A Explain various spectral regions and type of interactions taking place by absorption of radiation by material 10
- OR
- A Explain various types of chromatographic techniques and their applications. 10

Q.5 A Give chemical constituents/composition, material class of following materials and their application area (any 10) 10

Epoxy+ Kevlar, phenol+formaldehyde, Al+borasic, ball bearings, m-seal like commercial adhesive, araldite, stainless steel, plywood, MDF, auto rikshaw hood, nylogrip tyres, SBR rubber,