

MANUFACTURING ENGINEERING BRANCH

VIII SEMESTER (REGULATIONS 2004)

**MN 503 ELECTRONICS MANUFACTURING TECHNOLOGY**

Time: 3 Hours

Maximum: 100 Marks

Answer ALL questions

**PART A - (10 X 2 = 20 marks)**

1. List out various types of epitaxy process.
2. Distinguish between extrinsic stress and intrinsic stress.
3. Define electronic packaging.
4. Distinguish between active and passive SMT components.
5. What is meant by de-panelization of PCB?
6. What are the various steps in wave soldering process?
7. State various steps in component placement process.
8. Sketch the typical reflow profile of lead free solder.
9. How do you specify a PCB?
10. List out various defects that can be detected by using X-ray Laminography.

**PART B – (5X16=80 Marks)**

- 11 (i) Explain with neat sketches various steps in wafer preparation. (12)  
(ii) Compare PVD and CVD processes. (4)
- 12a) (i) List out various Through Hole Technology(THT) components. Explain any four components. (12)  
(ii) Describe various types of leads on IC package. (4)

(or)

- 12 b i) Enumerate with neat block diagram various steps in Surface Mount Technology(SMT) assembly process. (10)
- ii) Sketch and indicate important elements of Multilayer PCB (6)

- 13 a i) What is stencil printing process? List out various factors influencing the stencil printing process. Explain any two factors. (10)
- ii) Compare the salient features of different types of stencil manufacturing methods. (6)

(or)

- 13 b i) List out various defects in solder printing. Explain any three. (8)
- ii) Describe with neat schematic diagram reflow soldering process. (8)

- 14 a i) Explain with neat sketch principle of chip shooter in SMT process. (8)
- ii) Describe with schematic diagram the principle of Automated Optical Inspection(AOI) for component placement defect detection. (8)

(or)

- 14 b) Explain the salient features and capabilities of various types of flexible PCB.

- 15 a) List out various techniques of testing of SMT assembled board. Explain any four .

(or)

- 15 b) Enumerate various methods of repair and rework for SMT assembled board.