B.E. / B.Tech. DEGREE END SEMESTER EXAMINATIONS, NOV /DEC 2011

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. Define electronics packaging.
2. What is meant by one ounce of copper?
3. State any four important specifications of PCB.
4. State the advantages and limitations of SMT process.
5. Sketch the profile for paste viscosity change during stencil printing.
6. What is meant by -500/+635 screen mesh?
7. State any four factors influencing the use of automated placement equipment in SMT process.
8. Sketch typical reflow profile for Sn/Pb and Lead free solder.
9. Describe briefly functional test of populated PCB
10. State any four defects that can be detected using SAM.

PART B – (5X16=80 Marks)

11 i) Enumerate with neat sketches various steps in wafer preparation. (10)

ii) Sketch and indicate important elements of a multilayer PCB. (6)

12a i) Enumerate with neat schematic diagrams various steps in PCB manufacture. (8)

ii) Explain with neat block diagram various steps in Surface Mount Technology (SMT) process. (8)

(or)

12 b i) How do you classify Through Hole Technology (THT) components. Describe the salient features of them. (8)

ii) List out various stencil printing parameters. Explain any three. (8)

13a i) Enumerate various precautions to be followed in handling and storage of solder paste. (8)

ii) What are the various methods of stencil manufacturing? Describe any two methods. (8)

(or)

13b i) What are the factors influencing the use of automated placement equipment in SMT. Describe briefly with neat sketches any two types of chip shooter. (8)

ii) Explain with neat schematic diagram, forced convection reflow oven. (8)

14 a i) Explain with neat sketch, wave soldering process. (8)

ii) Explain the salient features and capabilities of various types of flexible PCB. (8)

(or)

14 b) Write short notes on

I. Electro Static Discharge (ESD) (5)
II. X-ray Laminography inspection (5)
III. Testing of PCB assemblies (6)

15 a) Enumerate the causes and corrective actions for the following defects:

I. Bridging
II. Improper print height
III. Misaligned component
IV. Tombstoning (4X4=16)

(or)

15 b) Explain the following repair and rework methods:

I. Bow and twist repair
II. Hole repair – Transplant method
III. Key and slot repair – Epoxy method
IV. Base material repair – Edge transplantation method (4X4=16)