

2123
M. Tech. (Micro-Electronics)
First Semester
MIC-102: Integrated Circuit Technology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- (a) What is point defect in wafers?
- (b) Discuss the principle of operation of Photolithography.
- (c) Differentiate in thick film and thin film technology.
- (d) Why clean room required for IC fabrication?
- (e) Discuss Twin-Well CMOS process. (5x2)

UNIT - I

- II. a) Differentiate in diffusion and ion-implantation process?
b) What is metallization? Discuss metallization methods. (2x5)
- III. a) How oxidations take place? Explain with examples.
b) Explain CVD technique along with its function. (2x5)
- IV. a) What is etching? Explain wet etching technique.
b) Give the role of sputtering and describe sputtering techniques. (2x5)

UNIT - II

- V. a) Compare SoS with SoI technology.
b) Explain BJT fabrication steps. (2x5)
- VI. a) Explain regression modeling using double parameter model.
b) What are the problems in CMOS process technology? How these can be mitigated. (2x5)
- VII. Write a note on:
 - a) Non-linear regression.
 - b) IC Packaging (2x5)

x-x-x