

328844(28)

B. E. (Eighth Semester) Examination,

April-May 2021

(New Scheme)

(Et. & T Engg. Branch)

**MICROELECTRONIC DEVICES & VLSI
TECHNOLOGY**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each question is compulsory.

Attempt any two parts from (b), (c) and (d).

Assume suitable data if required.

Unit-I

1. (a) Define Integrated Circuit. 2
- (b) Write short notes on Czochralski technique of crystal growth. 7

- (c) Explain the float zone process of crystal growth. Also write it's advantages. 7
- (d) Explain the Bridgeman Technique. 7

Unit-II

2. (a) Define Oxidation. 2
- (b) Explain Thermal Oxidation. Also explain thin and thick oxidation. 7
- (c) Explain chemical vapour deposition. 7
- (d) Write short notes on Polysilicon Deposition. 7

Unit-III

3. (a) Define diffusion. What are the types of dopants? 2
- (b) Explain diffusion equation and diffusion mechanism. 7
- (c) Write short notes on Ion Implantation System. 7
- (d) Explain High energy Implantation. 7

Unit-IV

4. (a) What do you mean by Epitaxy. 2

- (b) Explain vapour phase Epitaxy. 7
- (c) What is Lithography? Write short notes on different type of Lithography technique. 7
- (d) Explain Wet Chemical etching and properties of etching. 7

Unit-V

- 5. (a) What is threshold voltage in MOSFET? 2
- (b) Explain the MOSFET characteristics and operation of MOSFET. 7
- (c) Explain channel length modulation in MOSFET. 7
- (d) Explain MOS capacitance with equivalent circuit. 7