PAPER ID-310874

Subject Code: KEC053

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2023-24
VLSI TECHNOLOGY

TIME: 3 HRS **M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	Mention the advantages of ICs.	2	1
b.	Define polishing.	2	1
c.	What is auto doping in growth process?	2	2
d.	What is plasma oxidation?	2	2
e.	Explain photo mask.	2	3
f.	What are PR materials?	2	3
g.	Write the types of diffusion.	2	4
h.	Define ion-implantation	2	4
i.	Enlist different types of IC packages.	2	5
j.	Write all packaging design considerations.	2	5

SECTION B

2. Attempt any *three* of the following:		**10 x 3 = 30**	
a.	Explain Electronic Grade Silicon with neat diagram	10	1
b.	Discuss Vapor-Phase Epitaxy.	10	2
c.	Explain in detail Optical Lithography.	10	3
d.	Explain fick's law of diffusion.	10	4
e.	Discuss Package Types and Packaging Design Considerations.	10	5

SECTION C

3. Attempt any *one* part of the following:		**10 x 1 = 10**	
a.	Explain CZ process in detail with neat diagram. What is the pull rate in CZ technique?	10	1
b.	Discuss different shaping operations involved in preparing wafers with diagram.	10	1
4. Attempt any *one* part of the following:		**10 x 1 = 10**	
a.	Explain the principle of Molecular Beam Epitaxy.	10	2
b.	What is latch up? How it is avoided in CMOS technology?	10	2
5. Attempt any *one* part of the following:		**10 x 1 = 10**	
a.	Explain the kinetics of wet watching. How gold is etched?	10	3
b.	How is the silicon nitride used? Explain its deposition variables.	10	3
6. Attempt any *one* part of the following:		**10 x 1 = 10**	
a.	Define sheet resistance. Describe a method for its measurement.	10	4
b.	Discuss gaseous and liquid diffusion system.	10	4
7. Attempt any *one* part of the following:		**10 x 1 = 10**	
a.	Explain Metallization and describe the problems associated with this process.	10	5
b.	What do you mean by Sputtering? Explain Sputtering yield.	10	5