



Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech(ECE-VLSI)/SEM-1/MVLSI-104/2012-13
2012

**MICRO ELECTRONICS TECHNOLOGY &
IC FABRICATION**

Time Allotted : 3 Hours

Full Marks : 70

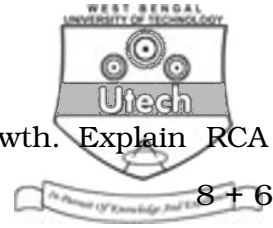
The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer Question No. 1 and any *four* from the rest.

1. Answer the following questions : $7 \times 2 = 14$

- a) Why is MGS ?
- b) Name the different steps involved in IC fabrication.
- c) For metallization which type of metal can be used ?
- d) What do you mean by twin tub process ?
- e) What is ATE ?
- f) What is ion implantation ?
- g) Draw the layout diagram of CMOS.



2. Explain the CZ technique of crystal growth. Explain RCA cleaning of substrate. 8 + 6
 3. What is lithography ? Explain the different stages involved in one of them. Write down the differences between diffusion and ion implantation. 9 + 5
 4. Explain CVD technique. Write down the differences between evaporation and sputtering. 10 + 4
 5. Explain diffusion process. Explain different types of diffusion profile. Write short notes on metallization. 3 + 8 + 3
 6. Write down in detail the steps involved with RIE and plasma etching. What are the needs of oxidation process in IC fabrication. Explain the thermal oxidation process. 8 + 2 + 4
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