S.No. 3381 16 SMBEEL 3:2

(For candidates admitted from 2016–2021 Batch)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Part III — Electronics — Major Based Elective

VERY LARGE SCALE INTEGRATION (VLSI)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20)

Answer ALL questions.

1. Define MOSFET.
2. Write the Abbreviation of CMOS.
3. What is Pass Transistor?
4. What is DTI Circuit?
5. What is crystal growing called?
6. What happens in oxidation?
7. What is monolithic IC fabrication?
8. List out the two uses of Monolithic Resistor
9. What is shift Register?
10. Define Comparators.

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

11. (a) Draw and explain the Structure of MOSFFF.

Or

(b) Explain the MOS Transistor Theory.

12. (a) How is nMOS inverter represented?

Or

(b) Explain why do you need a resistor with a MOSFET?

13. (a) Discuss in detail about the constant source diffusion.

Or

(b) Write short note on diffusion process in VLSI.

14. (a) Describe how monolithic diodes were fabricated?

Or

(b) What are the advantages of CMOS technology?

15. (a) Draw and explain the CMOS Decrement circuit.

Or

(b) Describe the working principle of CMOS serial registers.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the MOS device design equations.

17. Draw and explain the function of BIOMAS inverter.

18. What is Ion implementation and explain the advantages of Ion Implementation technique?

19. Explain in detail about the characteristic of Monolithic capacitors.

20. Draw and explain the functions of Comparators for a two bit number in CMOS application.

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