

S.No. 5344

16 SMBEEL 3:2

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2022.

Part III — Electronics — Major Based Elective

VERY LARGE SCALE INTEGRATION (VLSI)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What are the two types of MOSFET?
2. Draw the structure of MOSFET.
3. What is an inverter?
4. What is DTL?
5. List the fabrication process in VLSI.
6. Define metallization.
7. Define a monolithic resistor.
8. What is a CMOS?

9. Define a shift register.

10. What is a comparator?

PART B — ($5 \times 5 = 25$)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Draw the structure of MOSFET.

Or

(b) Explain depletion mode MOSFET.

12. (a) Explain MOSFET as resistor.

Or

(b) Explain differential inverter.

13. (a) Explain Oxidation.

Or

(b) Explain etching.

14. (a) Write short notes on monolithic diodes.

Or

(b) Write short notes on monolithic resistors.

15. (a) Explain left shift registers.

Or

(b) Write in detail about comparator for a two bit numbers.

PART C — ($3 \times 10 = 30$)

Answer any THREE questions.

16. Derive MOS device design equation.

17. Write in detail about the determination of pull up to put down ratio for an n-MOS inverter by another n-MOS inverter.

18. Write an essay about diffusion process.

19. Write a complete overview of MOSFET technology.

20. Explain about serial/parallel registers.