



QP CODE: 26019120



26019120

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc PHYSICS

ELECTIVE - PH800402 - MICRO ELECTRONICS AND SEMICONDUCTOR DEVICES

2019 Admission Onwards

D588D3A8

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Explain the function of microprocessor and its segments.
2. Explain DMA.
3. Specify the two 8085 signals that are used to latch the data in an O/P port.
4. What are the functions of Bus Interface Unit in 8086 microprocessor?
5. How 8086 microprocessors select 8 bit or 16- bit data from odd and even memory banks.
6. What are microcontrollers?
7. Define instructions and explain the three different parts of an instruction in 8051 microcontroller.
8. Give the basic block diagram of an embedded system.
9. Define sheet resistance. What is the order of magnitude of sheet resistance for the base region and also for the emitter region?
10. What are the disadvantages of Junction isolation technology? How is LOCOS able to correct it?
(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Write an assembly language program to subtract 84H from 93H and display the result at port I.
12. Distinguish between memory addressing mode and port addressing mode in 8086 microprocessor.





13. Explain the various data movement instructions of 8086 with examples.
14. Write a program to sort an array of ten bytes in ascending order using 8086 microprocessor. Add comments to your Program.
15. Discuss about the major registers in 8051 microcontroller.
16. Define specific contact resistance. Also show that specific contact resistance decreases rapidly as the barrier height decreases.
17. Draw and explain the energy-band diagram of an isolated narrow-bandgap and a wide-bandgap material before contact.
18. Describe the ion implantation process.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. What do you mean by DMA? Explain different types of DMA.
20. Which are the timer modes in 8051 microcontrollers and explain their function ?
21. Explain the V-I characteristics of Schottky diode. Show that the ideal reverse saturation current density of the Schottky barrier junction is of the order of magnitude larger than that of ideal p-n junction diode.
22. Describe in detail the various processes involved in fabricating a transistor into an IC.

(2×5=10 weightage)

