QP CODE: 24018093

24018093

Reg No : .....

Name : .....

M Sc DEGREE (CSS) EXAMINATION, APRIL 2024

Fourth Semester

M Sc PHYSICS

Elective - PH800402 - MICRO ELECTRONICS AND SEMICONDUCTOR DEVICES

2019 ADMISSION ONWARDS

C3A2620B

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Specify the functions of address bus and data bus.
2. Explain the function of ALE and IO/M signals of 8085 microprocessor.
3. Explain register addressing mode?
4. What is implied addressing mode in 8086? Give example.
5. Write 8086 program for the conversion of ASCII to Hexadecimal number.
6. What are microcontrollers?
7. State the difference between Von Neuman architecture and Harvard architecture in microcontrollers in view of internal memory.
8. Briefly explain about Labels in 8051 microcontroller program.
9. List the five steps involved in fabricating in a monolithic integrated circuit, assuming you already have a substrate.
10. List the advantages and disadvantages of an IC over a discrete transistor.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write a note on DMA data transfer.
12. Discuss about the functional parts of microprocessor 8086?

13. Explain the various control transfer Instructions of 8086 with examples.

14. Describe memory bank selection in 8086 microprocessor and mention the number of memory bank in 8086.

15. State the difference between microprocessors and microcontrollers.

16. Compare Schottky barrier diode with a p-n junction diode and obtain the V-I characteristics of a Schottky diode.

17. Explain the V-I characteristics of a heterojunction.

18. Sketch the cross section of MOS capacitor. Draw the equivalent circuit showing all parasitic elements.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. What do you mean by memory? Explain the classification of memory.

20. Give a brief account on the internal architecture of 8051 microcontroller with neat diagram.

21. Explain the metal semiconductor ohmic contact. Also discuss the two general types of ohmic contacts.

22. Describe the design rules for monolithic layout. Also explain the large scale and medium scale integration.

(2×5=10 weightage)