21000711

Reg No   :   ....

Name   :   ....

M Sc DEGREE (CSS) EXAMINATION, JULY 2021

Fourth Semester

Faculty of Science

M Sc PHYSICS

Elective - PH800402 - MICRO ELECTRONICS AND SEMICONDUCTOR DEVICES

2019 Admission Onwards

F930D8CB

Time: 3 Hours   Weightage: 30

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight **1** each.

1. What do you mean by direct mapping?

2. Draw programming model of 8085 .

3. Differentiate the instructions JMP and JC.

4. Mention the addressing modes of the following 8086 instructions. (i)MOV AL, DISP[AX] (ii)Mov AH, DISP [BX][SI]

5. What are the functions performed by logical instructions in 8086 microprocessor? Give an example and explain?

6. What you mean by an embedded system ?

7. What is the condition that a clock frequency of a microcontroller to be a standard one?

8. How can we estimate the timer frequency of a microcontroller?

9. Explain the masking and etching process.

10. How are the various areas of the chip electrically isolated from each other?

(8×1=8 weightage)

Part B (Short Essay/Problems)

Answer any **six** questions.

Weight **2** each.

11. State the components of microcomputer system and explain the functioning of each.

12. What are the functional parts of 8086 CPU?

13. Design a program using 8086 to sort an array of ten bytes in descending order. Add comments to your Program.

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

15. Explain about the instructions and comments in 8051 microcontrollers.

16. Explain the qualitative characteristics of Schottky barrier.

17. Explain ideal non rectifying barrier and the tunnelling barrier.

18. Describe the three popular diode structure in an integrated circuit. Compare their Characteristics.

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight **5** each.

19. Explain different types of I/O operations of a microcomputer system.

20. Explain in detail the applications of microcontrollers.

21. Write a note on Heterojunction? Derive the expression for built in potential barrier nP heterojunction in terms of conduction band shift, effective density states and hole concentrations.

22. Give a detailed account of transistors for monolithic circuits.

(2×5=10 weightage)