18001845





Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, NOVEMBER 2018

Third Semester

Faculty of Science

Branch II : Physics (A)–Pure Physics

Elective : Bunch A : Electronics

PH 3EA2-MICROELECTRONICS AND SEMICONDUCTOR DEVICES

(2012 Admission onwards)

Time : Three Hours

Maximum Weight : 30

Part A

Answer any **six** questions. Each question carries 1 weight.

- 1. What is virtual memory ? Explain.
- 2. What is DMA? Explain.
- 3. State the significance of flash memory.
- 4. How it is possible to disable interrupts in 8086?
- 5. How many clock cycles will be required by 8086 to access a 16 bit word located at an even address?
- 6. Give the register set of intel 8051 microcontroller.
- 7. Bring out the frequency measurement using microcontroller system.
- 8. What are the features of 8051 microcontroller?
- 9. Write the characteristics of hetrojunction materials.
- 10. What is two dimensional electron gas ? Explain.

 $(6 \times 1 = 6)$

Part B

Answer any **four** questions. Each question carries 2 weight.

- 11. Explain the various addressing modes in 8085 processor.
- 12. Draw and explain the memory structure of 8086.



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- 13. Explain the various addressing modes of 8051.
- 14. Explain the I/O port structure of 8051.
- 15. Obtain the current voltage characteristics of a Schottly diode.
- 16. How can an I/O pin can be both an input and output in 8051?

 $(4 \times 2 = 8)$

Part C

Answer **all** questions. Each question carries 4 weight.

17. (a) Draw and explain the timing diagram for memory read operation of 8085 processor.

Or

- (b) Explain how the memory can be interfaced with the intel 8085 microprocessor.
- 18. (a) Compare 8086 and 8088 processors.

Or

- (b) Draw the 8087 internal architecture and explain.
- 19. (a) Describe the interrupt structure of 8051 in detail.

Or

- (b) Discuss the instruction set of 8051 microcontroller with appropriate example.
- 20. (a) Discuss the metal semi conductor ohmic contact system. Explain tunneling barriers and non rectifying barriers.

Or

(b) Give a detailed account on hetrojunctions and materials with energy band diagram.

 $(4 \times 4 = 16)$

