

(Pages : 3)

T – 6594

Reg. No. :

Name :

Fourth Semester M.Sc. Degree Examination, July 2024

Physics

Special Paper II

PH 243 E : ADVANCED ELECTRONICS II
(2018 - 2019 Admission)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer any **five** questions. Each question carries **3** marks.

- I. (a) Briefly explain the conditional flags in 8086.
- (b) Explain the two addressing modes for I/O ports in 8086.
- (c) Discuss the function of the instruction pointer and stack pointer in 8086.
- (d) What are embedded processor families?
- (e) What is an expert system? Provide an example.
- (f) What is Satellite Link?
- (g) Define MTI radar.
- (h) What are parity check codes?

(5 × 3 = 15 Marks)

P.T.O.



SECTION – B

Answer **all** questions. Each question carries **15** marks.

- II. (a) Draw the pin diagram of the 8086 microprocessor and explain the function of each pin when operating in its maximum and minimum modes.

OR

- (b) Discuss the architecture and functioning of the 8257 Direct Memory Access (DMA) controller.

- III. (a) Explain the architecture and functioning of ADALINE and MADALINE networks.

OR

- (b) Describe the role of knowledge representation in artificial intelligence and how it affects problem-solving in AI systems.

- IV. (a) With the help of a block diagram, explain the working of a CW Doppler radar. Mention its advantages, applications and limitations.

OR

- (b) Describe three types of error-detection codes and explain how they detect data errors.

(3 × 15 = 45 Marks)

SECTION – C

Answer any **three** questions. Each question carries **5** marks.

- V. (a) Explain the timing diagram of read operation in 8086.

- (b) Briefly explain data transfer instructions in 8086 with examples.

- (c) Give an example of an embedded system and explain its key characteristics.



- (d) What are the basic components of an artificial neural network (ANN)?
- (e) Explain error detection and control in the data communication system.
- (f) A radar transmitter has a peak pulse power of 400 kW, a PRF of 1500 pps and a pulse width of $0.8 \mu\text{s}$. Calculate
- (i) the maximum unambiguous range
 - (ii) the duty cycle
 - (iii) the average transmitted power
 - (iv) a suitable bandwidth

(3 × 5 = 15 Marks)

