19APC0414T

B.Tech. DEGREE EXAMINATION, OCTOBER/NOVEMBER 2022.
End Examination
Sixth Semester
(ECE)
MICROPROCESSORS AND MICROCONTROLLERS
(Regular)
(Academic Year 2021–22)
(RU19 Regulations)

Time : 3 Hours *Max. Marks : 70*

PART — A

(Compulsory Question) **(10 × 2 = 20 Marks)**

1. (a) Define flag register.
   (b) Define instruction pipelining of 8086 microprocessor.
   (c) State the function of Bit test instructions.
   (d) Define accumulator
   (e) Define stack pointer.
   (f) Give the control word structure of 8255 PPI.
   (g) Give the flag structure of 8051 microcontroller.
   (h) Define single chip microcomputer.
   (i) What is ARM?
   (j) Draw a simple PIC reset circuit.

PART — B

Answer One full question from each Unit. **(5 × 10 = 50 Marks)**

All questions carry equal marks.

UNIT I

2. (a) Explain the functionality of pins used in the following modes of 8086 microprocessor :
   (i) Minimum mode
   (ii) Maximum mode. (5)
   (b) What is a microprocessor? Explain the brief history of evolution of microprocessor. (5)

Or

Turn Over

3. (a) Briefly explain register organization in 8086 microprocessor. (5)

(b) Explain any three string manipulation instructions of 8086? (5)

UNIT II

4. (a) Write a program to add a data byte located at offset 0500H in 2000 H segment to another data byte available at 0600H in the same segment and store the result at 0700H in the same segment. (5)

(b) Mention any four different types of addressing modes of 8086 instruction set? And explain them. (5)

Or

5. (a) Write an assembly language program for a 16-bit increment and that will not affect the contents of the accumulator. (5)

(b) Write an 8086 ALP to convert ASCII to BCD number. (5)

UNIT III

6. (a) Give the internal block diagram of 8259A and present the overview of it. (5)

(b) Draw and discuss the asynchronous mode transmitter and receiver data formats of 8251. (5)

Or

7. (a) With the internal structure, explain the operation of 8257 DMA controller. (5)

(b) With the internal structure, explain the operation of 8259 controller. (5)

UNIT IV

8. (a) Write the salient features of 8051 family of microcontrollers. (5)

(b) Explain the Timers in 8051 and its modes. (5)

Or

9. (a) What are the interrupts of 8051? Explain them briefly. (5)

(b) Explain the instruction set of 8051. (5)

UNIT V

10. (a) Draw the block diagram of Cotex-M3 and Cortex-M4 processor? Explain. (5)

(b) Discuss the processor type in ARM cortex–M processors.

Or

11. (a) Write a short note on the instruction set of Cortex–M processors. (5)

(b) Explain in detail about ARM vs thumb programming model. (5)
