INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal-500043, Hyderabad

B.Tech VIII SEMESTER END EXAMINATIONS (REGULAR) - JUNE 2022
Regulation: R18
MICROPROCESSORS AND INTERFACING

Time: 3 Hours   (MECHANICAL ENGINEERING)   Max Marks: **70**

Answer FIVE Questions choosing ONE question from each module
(NOTE: Provision is given to answer TWO questions from any ONE module)
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) What are the different types of addressing modes of 8086? With an example of each explain any five addressing modes of 8086 microprocessor. [BL: Understand| CO: 1|Marks: 7]

   (b) Brief out how a 20 bit physical address is generated using 8086 microprocessor with neat diagram. [BL: Analyze| CO: 1|Marks: 7]

2. (a) Draw the flag register of 8086 microprocessor and explain the conditional flags with examples. [BL: Understand| CO: 1|Marks: 7]

   (b) Write an assembly language program to add 10 data bytes stored in even address of default data segment starting from 0000h offset. And store the result in ES:2020(ES=1B1B). [BL: Apply| CO: 1|Marks: 7]

MODULE – II

3. (a) How the interrupt response of a 8086 microprocessor is performed? Distinguish between polling methods and interrupt method in 8086 interrupts. [BL: Understand| CO: 2|Marks: 7]

   (b) Explain about maximum mode operations of 8086 and draw timing diagram for memory write operation. [BL: Understand| CO: 2|Marks: 7]

4. (a) Describe about interrupt handling mechanism in 8086 microprocessor. Briefly explain about DOS and BIOS interrupts with example. [BL: Understand| CO: 2|Marks: 7]

   (b) List out the operating modes of 8086 microprocessor. Draw the neat pin diagram of 8086 microprocessor and briefly explain. [BL: Understand| CO: 2|Marks: 7]

MODULE – III

5. (a) Illustrate the need of DMA controller and its interfacing to 8086. List out the operating modes of 8257 DMA controller. [BL: Understand| CO: 3|Marks: 7]

   (b) Write a short note on TTL to RS 232C conversion. Outline the pin structure of RS232C and explain about most commonly used signals. [BL: Understand| CO: 3|Marks: 7]

6. (a) What is the need of 8259A PIC? Illustrate different types of initialization command words used in 8259 PIC? [BL: Understand| CO: 4|Marks: 7]

   (b) Outline the internal block diagram of 8251 USART and explain about each block in detail. [BL: Understand| CO: 4|Marks: 7]

MODULE – IV

7. (a) List out the features of 80386 microprocessors. Explain briefly about segmentation and paging concepts in 80386 processor. [BL: Understand| CO: 5|Marks: 7]

   (b) Differentiate between hard and soft interrupts. Write the different interrupts available in 80286 advanced microprocessor. [BL: Understand| CO: 5|Marks: 7]

8. (a) What are the salient features of 80286 advanced microprocessor? Draw a neat architecture diagram of 80286 microprocessor. [BL: Understand| CO: 5|Marks: 7]

   (b) What is the importance of branch prediction in Pentium processor? Write short note on branch prediction. [BL: Understand| CO: 5|Marks: 7]

MODULE – V

9. (a) List out all the general purpose registers in 8051 microcontroller. Explain the TMOD and TCON register format of 8051. [BL: Understand| CO: 6|Marks: 7]

   (b) List the features of 8051 microcontroller. Describe about serial communication in 8051 microcontroller. [BL: Understand| CO: 6|Marks: 7]

10. (a) What are different modes of timer operation? Explain the steps for mode 1 programming timers in 8051. [BL: Understand| CO: 6|Marks: 7]

    (b) Describe the 8051 interrupt structure. Also mention the events that can trigger interrupt.
    [BL: Understand| CO: 6|Marks: 7]

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