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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech VI Semester End Examinations (Regular) - May, 2019

Regulation: IARE – R16

MICRO PROCESSORS INTERFACING AND APPLICATIONS

Time: 3 Hours

(IT)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

- (a) How 8086 instructions are categorized? Explain data transfer instructions. [7M]

(b) Define Addressing mode. The contents of different registers are given below: [7M]
Offset (displacement)=5000H
[AX]-1000H, [BX]- 2000H, [SI]-3000H, [DI]-4000H, [BP]-5000H,
[SP]-6000H, [CS]-0000H, [DS]-1000H, [SS]-2000H, [IP]-7000H.
Calculate the effective addresses for different addressing modes:

 - Direct addressing
 - Register indirect
 - Register relative
 - Based indexed
 - Relative based index
- (a) Draw the architecture of 8086 microprocessor and give brief explanation of each unit. [7M]

(b) Explain the functions of following signals of 8086 microprocessor. [7M]

 - ALE
 - DT/R
 - HOLD
 - HLDA

UNIT – II

- (a) Draw and explain memory write cycle of 8086 microprocessor with timing diagram. [7M]

(b) Write an ALP to move a string of bytes from 1000H to 2000H the length of string is 10 bytes. [7M]
- (a) List the types of DMA data transfer modes present in 8086 microprocessor? [7M]

(b) Explain the following instructions. [7M]

 - TEST AX,5555H
 - MUL [SI+5]
 - OR AX,[0500H]
 - MOV BL,CL

UNIT – III

5. (a) Draw and explain about the functional blocks of 8257. [7M]
(b) Write an assembly language program to rotate the stepper motor continuously in clockwise direction for following specifications [7M]
 $N_T =$ Number of teeth on rotor = 200
Speed of motor = 12 rotations/minute.
CPU frequency = 10MHz
6. (a) Define DMA? Explain about DMA transfer method? Discuss the advantages and disadvantages in DMA transfer method? [7M]
(b) Illustrate how a keyboard is interfaced to 8086 through 8255. Draw the necessary interface circuit. [7M]

UNIT – IV

7. (a) List the serial data transfer schemes and compare asynchronous and synchronous data transfer. [7M]
(b) What is the purpose of 8251 USART? How it is initialized explain with diagram. [7M]
8. (a) Explain the pin structure of RS232C and also discuss about voltage and current specifications of RS232C. [7M]
(b) How to convert RS232C to TTL signal and TTL to RS232C for serial data transmission. [7M]

UNIT – V

9. (a) Explain addressing modes of 80386 in advanced microprocessors. [7M]
(b) Discuss about memory access in GDT and LDT and explain the structure of GDT and LDT with neat diagrams. [7M]
10. (a) Describe the features of multitasking. List the applications and advantages of it. [7M]
(b) What is the importance of paging unit in 80386 microprocessor. [7M]

