END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] MAY-JUNE 2017

Paper Code: ETEE 310   Subject: Microprocessors and Microcontrollers

Time: 3 Hours   Maximum Marks: 75

Note: Attempt any five questions including Q.No. 1 which is compulsory.
Select one question from each unit. Assume missing data if any.

Q1.
a) Draw and explain timing diagram of memory read machine cycle of 8085.
b) Transfer 8 bit data of memory location 7000H into register B by using three methods.
c) In 8085, the stack pointer points to location 0000H. In which memory location will be stack contents be stored if the stack is used?
d) Explain assembler directives: EVEN, PROC, END.
e) The contents of DS is 32A5H. The amount of data that is to be stored in data segment is 12K byte. Where in memory, will this segment be located?
f) Draw and explain Interrupt Vector Table of 8086.
g) Write and explain BSR mode of 8255.
h) With the help of a waveform, explain 8253 in mode 3.
i) Explain format of PSW register of 8051.
j) Show status of CY, AC and P flag after execution of following instruction: (2.5x10=25)
MOV A, #88H
ADD A, #93H

Unit-I

Q2.
a) Explain following pins of 8085:   (6)
ALE, IO/$\overline{M}$, READY, HOLD

b) What is an addressing mode? Explain various addressing modes of 8085 with examples.   (6.5)

Q3.
a) Write an assembly language program to sum the following series: (5)
1+2+3+..............................+F.
Store the result at memory location 4000H assuming that the series start from memory location 3500H.

b) Explain the sequence of operations carried out by microprocessor while handling an interrupt. Explain various hardware interrupts of 8085 indicating their ISR address, priority and triggering.   (7.5)

Unit-II

Q4.
a) Draw and explain chart of program execution followed by an assembler. Explain various program development tools used in it. (6.5)

b) Explain the difference between 8085 and 8086 microprocessor.   (6)

Q5.
a) Draw and explain 8086 maximum mode configuration.   (6.5)

b) Interface four chips of 2K RAM and two chips of 2K ROM with 8086. Give complete memory map of the system.   (6)

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Unit-III

Q6. Draw and explain block diagram of 8251 in detail. Specify mode word format required to initialize 8251 in asynchronous mode for following conditions: **(12.5)**
   i) 5 bit character length
   ii) Event parity
   iii) Internal sync detection
   iv) Single sync character

Q7. a) With the help of a diagram and program. Explain interfacing of an analog of digital converter with 8086 using 8255 IC. **(6)**

   b) Explain internal architecture of 8259. **(6.5)**

Unit-IV

Q8. a) Write a program to generate square wave of 50% duty cycle in P1.5 bit of 8051. Timer 0 mode 1 is used to generate time delay. **(6.5)**

   b) Explain the criterion for choosing a microcontroller. Give major application areas of microcontroller. **(6)**

Q9. a) Discuss in detail RAM memory space allocation in 8051. **(6.5)**

   b) Explain following instructions of 8051 with example: **(6)**
   i) SWAPA
   ii) CJNE destination, source, label
   iii) CPL A
   iv) ANL destination, source

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