R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, April - 2018
MICROPROCESSORS AND MICROCONTROLLERS
(Common to ECE, ETM)

Time: 3 hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)   When does the 8086 processor is in minimum mode and maximum mode?   [2]
  b)   List different types of 8086 hardware interrupts.   [3]
  c)   Write the different logical instructions of 8086.   [2]
  d)   Give the advantages of assembly language over machine language.   [3]
  e)   Give the RS 232 Standard details.   [2]
  f)   List out the important features of the A/D converter.   [3]
  g)   What is push and POP instructions in 8051?   [2]
  h)   What is the difference between microprocessor and micro controller?   [3]
  i)   Draw the read cycle timing diagram for 8086 under minimum mode of operation. [2]
  j)   How does effect the SBUF SFR in serial communications of 8051?   [3]

PART-B

(50 Marks)

2.a)   Explain the concept of segmented memory. What are the advantages?
  b)   Describe the implementation of pipelined process of 8086.   [5+5]
OR
3.   Explain the internal hardware architecture of 8086 microprocessor with neat diagram.
                                                                                 [10]

4.a)   Write an 8086 ALP to find the sum of numbers in the array of 10 elements.
  b)   Explain any five assembler directives of 8086 with suitable examples.   [5+5]
OR
5.a)   Write an assembly language program (ALP) which counts the number of A's and a's in
       a string of characters
  b)   Explain the function of the following instructions.   [5+5]
       i) AAD   ii) MOVSB   iii) LAHF
       iv) JNZ   v) LEA   vi) DAD

6.a)   Explain the briefly the different modes operation of 8255 PPI.
  b)   Draw and explain the synchronous mode transmitter and receiver data formats of 8251.
                                                                                 [5+5]

OR

7.a) Write a program to interface 4×4 keyboard to 8086 through ports A and B operating at I/O base addresses 0FFF9. Draw the necessary interface details.

b) Explain the interfacing procedure of an 8 - bit DAC with 8086 microprocessor.   [5+5]

8.a) Explain SCON register programming in 8051.

b) Write an ALP to generate the 1 kHz square wave form using mode 1 timer programming.   [5+5]

OR

9.a) Explain the I/O pins ports and circuit details of 8051 with its diagram.

b) Write a program to multiply the data in RAM location 3AH by the number 11H. Put the result in R4 and R5 registers.   [5+5]

10.a) Explain: i) TCON ii) TMOD registers in detail.

b) Discuss about 8051 serial port programming.   [5+5]

OR

11.a) How does 8051 process generate the ISR address on an un-marked interrupt?

b) How does timer over flow interrupts differ from real time clocked interrupts?   [5+5]

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