

**R15**

Code No: 126VM

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year II Semester Examinations, April - 2018**

**MICROPROCESSORS AND MICROCONTROLLERS**

(Common to ECE, ETM)

Max. Marks: 75

Time: 3 hours

**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? [5+5]
- 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. [5+5]
- 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 [5+5]

- 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. [5+5]
- b) Draw and explain the synchronous mode transmitter and receiver data formats of 8251. [5+5]

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**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.

8R 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.

8R 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?

8R b) How does timer over flow interrupts differ from real time clocked interrupts? [5+5]

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