

**R13**

Code No: 126EM

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, December - 2017

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) Which type of operation indicated by status lines of 8086? [2]
- b) What are the capabilities of I/O address lines of microprocessor? [3]
- c) Define the term macro's. [2]
- d) Give the advantages of assembly language over machine language. [3]
- e) Define the term Interrupt. [2]
- f) List out the difference between static and dynamic memories. [3]
- g) What is the function of Port 3 of 8051 microcontroller? [2]
- h) What is the function of clock generator of 8051? What are the signals are used for clock in 8051. [3]
- i) What is the function of Timer? [2]
- j) How does effect the SBUF SFR in serial communications of 8051? [3]

**PART - B****(50 Marks)**

- 2.a) Draw and explain the each bit of flag register of 8086 family microprocessor.
  - b) Describe the implementation of pipelined process of 8086. [5+5]
- OR**
- 3.a) Draw and explain the read and write cycle timing diagrams of 8086 in maximum mode.
  - b) Explain the physical memory organization of 8086 system. [6+4]
4. Enlist the addressing modes of 8086 and describe briefly each addressing mode with one example. [10]
- OR**
5. Explain the all assembler directives of 8086 with suitable examples. [10]
- 6.a) Interface Eight 8K RAM chips and Four 8K×4 EPROM chips with 8086 so as to form a completely working system configuration.
  - b) Explain the interfacing procedure of an 8-bit ADC with 8086 microprocessor. [5+5]
- OR**
- 7.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]

8. Draw and explain the internal architecture of 8051 family microcontroller and explain each block of it. [10]

OR

9.a) Describe briefly the register set of 8051 microcontroller.  
b) Explain the importance of data transfer type instructions of 8051. [5+5]

10. Draw and explain the following SFRs.  
a) IE                      b) IP [5+5]

OR

11.a) Write and explain the instructions to read the SBUF eight times with an interval of 0.33ms and save the results between the R0 and R7 of the register bank 0.  
b) How does the timer overflow interrupt differ from real time clocked interrupts? Discuss in detailed. [5+5]

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