

Code No: 126AK

**R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech III Year II Semester Examinations, May – 2016**  
**MICROPROCESSORS AND INTERFACING DEVICES**  
**(Electrical and Electronics Engineering)**

**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) What is meant by Memory segmentation? [2]
- b) Name the special purpose registers and write the function of each register. [3]
- c) Give the CALL instruction operation. [2]
- d) Name different types of assembler directives, explain any two. [3]
- e) Define interrupt service routine. [2]
- f) Compare Static and Dynamic memories. [3]
- g) Define prototype. [2]
- h) Explain the serial data transfer schemes operation. [3]
- i) Compare microprocessor and microcontroller. [2]
- j) List different instruction set groups of 8051  $\mu$ c. [3]

**PART - B**

**(50 Marks)**

- 2.a) Draw read and write timing diagrams of 8086-Maximum mode.
- b) Draw the structure of 8086 flag register and explain the bits. [5+5]

**OR**

- 3.a) Explain the Register set of 8086 processor.
- b) Write short note on interrupt structure of 8086. [5+5]

- 4.a) Write a sorting program in 8086 assembly language in a Ascending order.
- b) Write an assembly language program to solve the expression  $7x^2 + 3x + 10 = y(x)$ . [5+5]

**OR**

- 5.a) Write an assembly language program to find whether the given number is prime or not?
- b) Explain the addressing modes of 8086. [5+5]

- 6.a) Draw the structure of 8086 interrupt vector table and explain.
- b) Explain the significance of cascading 8259 controller. [5+5]

**OR**

- 7.a) Interface a typical 12-bit DAC with 8255 and write a program to generate a Square waveform of period 10ms. The CPU run at 5 MHz clock frequency.
- b) Explain why 8255 ports are divided into two groups? Discuss how these groups are controlled in different modes of operation? [5+5]

- 8.a) Explain TTL to RS 232C and explain high speed serial communication standards and USB.  
b) Explain Asynchronous transmission in serial mode. [5+5]

**OR**

- 9.a) Explain the line driver and the line receiver circuits of serial communication.  
b) What do you mean by I/O mapped I/O? Draw the interfacing of 8251 with 8086 in I/O mapped I/O mode. [5+5]
- 10.a) Explain various operation modes of Timer-1 and Timer-0.  
b) Describe the Timer control (TCON) and Timer mode control (TMOD) registers. [5+5]

**OR**

11. Explain the various addressing modes of 8051 with suitable example. [10]

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