

**MICROPROCESSORS & INTERFACING**

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

**PART - A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) List four categories of 8085 instructions that are used for data manipulation.
  - (b) How many memory locations can be addressed by a microprocessor with 14 address lines?
  - (c) What is the difference between the short and near jumps in 8086?
  - (d) Define macro. Give an example.
  - (e) What is the memory address space in 8086?
  - (f) Write the different forms of the IN instruction in 8086.
  - (g) Compare serial and parallel communications.
  - (h) List the various operating modes of the 8253.
  - (i) What does a '0' in the zero flag after an arithmetic operation mean?
  - (j) Where are the registers R0-R7 located in the 8051 microcontroller?

**PART - B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT - I**

- 2 Draw and explain the register organization of the 8086 and explain typical applications of each register.

**OR**

- 3 (a) How are clock signals generated in the 8085? What is the frequency of the internal clock? Explain.  
(b) Compare the instruction CALL and PUSH.

**UNIT - II**

- 4 Explain the functions of the assembler directives PTR, TYPE, SHORT, GLOBAL and LOCAL with examples for each.

**OR**

- 5 (a) Discuss the function of the LOCK prefix used with an 8086 instruction.  
(b) Describe the different program memory addressing modes in the 8086 giving an example for each.

**UNIT - III**

- 6 Draw a circuit showing the generation of I/O read and write control signals in the minimum mode operations of the 8086.

**OR**

- 7 (a) Discuss techniques for developing programs to handle operations of I/O devices.  
(b) Explain the functions IC 74244 and IC 74245.

**UNIT - IV**

- 8 Draw a block diagram of the 8259 and explain how it can be used for increasing the interrupting capabilities of the 8086.

**OR**

- 9 (a) Find BSR control words for setting PC4 pin and resetting PC2 pin in the 8255.  
(b) Discuss the different modes of operation in the 8237.

**UNIT - V**

- 10 (a) Why microcontrollers are often called single chip computers? Explain.  
(b) Write a program to arrange a block of binary numbers in ascending order.