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10EC/TE62

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017

Microprocessor

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain the architecture of 8086 microprocessor with a neat block diagram. (10 Marks)
- b. Define addressing modes of 8086 and identify the addressing modes of the following instructions: i) add ax, [si] ii) mov al, [1000] iii) mov [bx + si + 06], bl
iv) mov bx, [bp + 50] (10 Marks)
- 2 a. Discuss the functions of following instructions:
i) xlat ii) aam iii) das iv) imul bx
v) lds bx, [1234h] (10 Marks)
- b. Write an ALP to multiply two-16 bit packed BCD numbers. (06 Marks)
- c. Define the following assembler directives:
i) ALIGN ii) EVEN iii) ENDS iv) LOCAL (04 Marks)
- 3 a. Describe the following string instructions :
i) repe movsb ii) cmpsb iii) scasb iv) lodsb (08 Marks)
- b. Write an ALP to scan for a character in a string and replace by another character. Use assembler directives. (08 Marks)
- c. Write a program to convert binary byte to ASCII equivalent. (04 Marks)
- 4 a. Define an interrupt. Explain 8086 interrupts and response mechanism. (08 Marks)
- b. Write a macro for the following cases:
i) Read a character from keyboard without echo.
ii) Display a message on the CRT monitor.
iii) Display an integer on CRT monitor. (06 Marks)
- c. Write a subroutine to print a string on printer. Call this subroutine from a main program to print two message strings. (06 Marks)

PART – B

- 5 a. Interface 4×4 keyboard to 8086 microprocessor using 8255 PPI. Write the necessary circuit diagram and program. (10 Marks)
- b. Write an ALP to interface seven segment display to 8086 and demonstrate the display as flashing display. Write the necessary circuit diagram. (10 Marks)
- 6 a. Write the control word format of 8087 and define various fields. (04 Marks)
- b. What are the functions of following 8087 instructions? Explain.
(i) FENI (ii) FCOMP (iii) FSTENV (iv) FLDL2E
(v) FLDZ (10 Marks)
- c. Write 8087 ALP to compute the volume of the sphere. (06 Marks)
- 7 a. With a neat block diagram, explain the maximum mode operation of 8086. (10 Marks)
- b. What are the characteristics of PCI and USB interface? (06 Marks)
- c. Show an interface of printer to a 8086 microprocessor. Define the signals of importance. (04 Marks)
- 8 Write short notes for the following:
a. Pentium microprocessor. (08 Marks)
- b. Special registers of 80386. (06 Marks)
- c. Memory structure of 80386. (06 Marks)

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Important Note - 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Any marking or scribbles on these pages, or any revealing of identification, appear to evaluator and/or equations written eg. 4z: 8 - 30, will be treated as malpractice.