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10EC/TE62

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Microprocessors

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Trace the development of intel 86 family of microprocessors briefly indicating the additional features introduced at each stage of development from 8086 to Pentiun IV. **(10 Marks)**

b. Explain the functions of the following registers in 8086 CPU:
i) The segment registers ii) The instruction queue iii) The flag register. **(10 Marks)**

2 a. Explain the (MOD-REG-R/M) byte of an 8086 instruction, with its interpretations. **(04 Marks)**

b. What do the following instructors do?
i) ROL ii) RCL iii) STD iv) XCHG AX, [BX]. **(08 Marks)**

c. What are assembler directives? Explain the significance of the following: i) Assume ii) EXTRN iii) PUBLIC. **(08 Marks)**

3 a. What are string instructions? How do they help in reducing the number of instructions used in a program? **(10 Marks)**

b. Distinguish between MACRO and procedure. **(04 Marks)**

c. Write an algorithm and a program to convert the given four digit BCD data to its equivalent hexadecimal value. **(06 Marks)**

4 a. Explain the interrupt structure in 8086. Write the functions of at least five dedicated software interrupts in 8086. **(10 Marks)**

b. With a note on the interrupt instructions in 8086 **(05 Marks)**

c. Describe the action taken by 8086 when Nmi pin is activated. **(05 Marks)**

PART – B

5 a. With relevant interface diagram, write a flow chart and program code for 4 × 4 matrix keyboard detect, deboune and encode procedure. **(10 Marks)**

b. Explain how to interface stepper motor to an 8086 processor. **(10 Marks)**

6 a. Explain with a neat block diagram the architecture of arithmetic processor 8087. **(10 Marks)**

b. Write a program to compute the volume of a sphere using 8087 instructions (Use formula $V = 2\pi R^3/3$). **(10 Marks)**

7 a. With appropriate circuit diagrams, explain how you would generate, data, address and control buses for memory and I/O interfacing from an 8086 processor in the MAX mode of operation. **(10 Marks)**

b. Explain the features of USB and LPT interface. **(10 Marks)**

8 a. Describe the basic 486 architecture. **(05 Marks)**

b. List the extended resistors found in 80386 microprocessor. **(06 Marks)**

c. What are the unique features of a Pentium processor? **(09 Marks)**

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