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06CS45

Fourth Semester B.E. Degree Examination, June/July 08
Microprocessors

Time: 3 hrs.

Max. Marks:100

Note : Answer any FIVE full questions.

- 1 a. With a neat diagram, explain the architecture of 8086 microprocessor along with functions of each block and registers. (10 Marks)
b. Explain the addressing modes used in 8086 with an example for each. (10 Marks)
- 2 a. State and explain instruction formats of 8086. Also generate the opcode for following instructions :
i) MOV AX, BX ii) MOV 46h [BP], DX iii) MOV CS : [BX], AL iv) IN AL, DX (08 Marks)
b. Explain the following assembler directives with example :
i) PROC and ENDP ii) PUBLIC and EXTRN iii) MACRO and ENDM
iv) ASSUME v) SEGMENT, ENDS (08 Marks)
c. Explain the following instructions :
i) div ii) XLat iii) AAA iv) XCHG (04 Marks)
- 3 a. Write an ALP to find factorial of a number using recursion. (06 Marks)
b. Explain the types of program execution transfer instruction (Branch instructions) with examples. (08 Marks)
c. Write a delay procedure for producing a delay of 1 sec for 8086 microprocessor working at 10 MHz. (06 Marks)
- 4 a. Explain string related instructions with examples. (08 Marks)
b. Bring out the differences between macro and procedure. (06 Marks)
c. Explain the sequence of operations that takes place when a procedure is called and returned from procedure back to calling program. (06 Marks)
- 5 a. Write an ALP to find NCR using recursive procedure. Assume N and R are non-negative numbers. (10 Marks)
b. Write an ALP to read a string from keyboard convert to upper case and display on monitor. (10 Marks)
- 6 a. Explain minimum mode PINS of 8086 and minimum mode configuration of 8086 with a neat diagram. (08 Marks)
b. Bring out the differences between 8086 and 8088 microprocessors. (06 Marks)
c. Interface 8 K ROM using 2732 chip and 4K RAM using 6116 chip to 8086 assuming starting address for ROM as 40000h and for RAM it is 44000h. (06 Marks)
- 7 a. Explain the types of interrupts along with action taken by 8086 when an interrupt occurs. Also explain interrupt vector table. (10 Marks)
b. Explain with block diagram, the working of 8259 and also explain ICW's and OCW's. (10 Marks)
- 8 a. Explain the control word format of 8255 and modes of operation of 8255. Also write the control word to select PC₂, PC₄ and set pc₂, reset pc₄. (10 Marks)
b. Explain how do you interface a stepper motor to 8086 to rotate the motor in clockwise direction by 360° and then anticlockwise direction by 180° using 8255 with a neat diagram. (10 Marks)