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06CS45

Fourth Semester B.E. Degree Examination, Dec 08 / Jan 09
Microprocessors

Time: 3 hrs. Max. Marks:100

Note : ***Answer FIVE full questions, selecting atleast TWO questions from each Part A and Part B.***

PART - A

1 a. Explain with neat diagram, the internal architecture of 8086 microprocessor. Clearly state functions of following in brief. i) Queue ii) BIU iii) AX iv) IP. **(10 Marks)**

b. Explain any five addressing modes with example of each. Also mention the effective offset address of memory location. **(10 Marks)**

2 a. Write and explain instruction template for MOV instruction. Find out machine code for the instruction MOV [SI], al. **(10 Marks)**

b. Find and explain errors, if there are any, in the following instructions.
i) MOV BH, DX ii) OUT 65H, al iii) MUL BL, CL iv) POP F
v) SHR AX, 02. **(10 Marks)**

3 a. Write an ALP to add 5, 16 bit unsigned binary numbers and save the sum and average in memory locations. **(06 Marks)**

b. Write an ALP to calculate delay of 100 milliseconds for 8086 MP working at 10 MHz clock. **(06 Marks)**

c. Compare macro and procedure with example of each. **(08 Marks)**

4 a. Explain conditional and unconditional jump instructions in 8086 MP with example of each. Clearly differentiate between short, near and far jump. **(10 Marks)**

b. Write an ALP to find factorial of single digit number using recursive procedure. Describe stack operations when CALL and RET instructions are executed. **(10 Marks)**

PART - B

5 a. Explain following with example of each. i) DAA ii) Xlat iii) SCASB iv) DD v) PUBLIC. **(10 Marks)**

b. Write an ALP to count number of 1 in given 16 bit unsigned binary number. Save the count in memory locations. **(05 Marks)**

c. Write procedure to convert two digits packed BCD number to two ASCII characters and store them in memory location. **(05 Marks)**

6 a. With neat diagram, explain minimum mode configuration of 8086 MP. **(08 Marks)**

b. Explain with neat timing diagram, the bus activities during a memory read machine cycle. **(06 Marks)**

c. With neat diagram, explain memory organization in 8086 microprocessor. **(06 Marks)**

7 a. Explain the action taken by 8086 MP when an interrupt occurs. Explain interrupt vector table. **(10 Marks)**

b. Show the sequence of ICW and OCW to initialize IC 8259 with base address of FF10H as follows : Edge triggered, Only one 8259 IC, 8086 MP, Interrupt type 40H corresponds to IR_0 input, Normal EOI, Nonbufferred mode, not fully specially nested mode, IR_1 and IR_3 inputs unmasked. **(10 Marks)**

8 a. Explain different methods of parallel data transfer with waveforms. **(10 Marks)**

b. With internal diagram, explain function of various blocks of 8255 PPI. Find out CW for 8255 PPI with A, B port as input and C port as output in mode O. **(10 Marks)**

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