Code No: R31055

R10

Set No: 1

III B.Tech. I Semester Regular Examinations, November/December - 2012
MICRO PROCESSORS AND MULTICORE SYSTEMS
(Computer Science and Engineering)

Time: 3 Hours   **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the register set of 8086 processor.
   (b) What is addressing mode? Explain different type of addressing modes in 8086 with examples.

2. (a) List out and explain conditional jump instructions of 8086 with example.
   (b) Write an ALP to multiply a two 32bit number & store the 64-bit product in memory.

3. (a) Differentiate between Macros & Procedures with an examples.
   (b) Write an ALP to find the GCD of four, 8-bit numbers using a procedure.

4. (a) What are assembler directives? Explain the significance of the following assembler directives with suitable examples. i) LENGTH   ii)TYPE   iii)DB   iv)EQU
   (b) Write an ALP to convert a 3- digit BCD number to binary number.

5. (a) What is the interrupt vector table? Draw and explain the interrupt vector table for 8086.
   (b) Describe the response of 8086 processor, when interrupt coming on INTR.

6. (a) List out and Explain bit level instructions of 8086 with examples.
   (b) Write an ALP to count number of positive & negative numbers in an array of N-numbers.

7. (a) Explain the function of the following 80386 pins: i) $\overline{ERROR}$;   (ii) $\overline{PEREQ}$; (iii) $\overline{LOCK}$; (iv) $\overline{READY}$; (v) $\overline{ADS}$; (vi) $\overline{RESET}$; (vii) $D/\overline{C}$; (viii) $\overline{NA}$;
   (b) Write a note on the internal programming model of 80486 & depict the EFLAG register in detail.

8. (a) Write a note on Pentium Processor?
   (b) Compare dual core & Core due with respect to basic characteristics and architecture.
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1. (a) Explain the segmentation in 8086 processor. What are the advantages of segmentation in 8086?
   (b) Draw & Explain the internal architecture of 8086

2. (a) Determine whether the following instructions are valid or not. If valid, explain their operation & flags affected, if not, mention the reason.
   i) XLAT AL   ii) MOV BX,[DX]   iii) NOT 34h
   iv) AAD   v) TEST OPRI, OPR2   vi) JNGE label.
   (b) Write a 8086 ALP to add two- 64 bit numbers and store result in suitable memory locations.

3. (a) Write an ALP that displays a carriage return & a line feed using a MACRO?
   (b) Differentiate between Macros & Procedures with an example.

4. (a) What is assembler directive?. Explain the following directives with example.
   i) ASSUME   ii)EQU   iii)ENDS   iv)EXTRN
   (b) Explain the following instructions with examples.
   i) AAA   ii) LOOPNE   iii) AAM   iv) TEST

5. (a) What is interrupt? How operation takes place and Explain different types of interrupts in 8086?
   (b) Write difference between hardware and software interrupts of 8086 processor.

6. (a) List out and explain bit level instructions of 8086 with examples.
   (b) Write an ALP to convert 4-digit BCD to ASCII.

7. (a) Explain the following with respect to Pentium Processor:
   i) Branch Prediction logic   ii) Cache structure
   (b) Explain the structure of special 80386 registers.

8. (a) Explain the basic feature of Pentium Processor
   (b) Compare dual core & Core due with respect to basic characteristics and architecture
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1 of 1

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R10

Set No: 3

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1. (a) With reference to 8086 CPU, explain the role of the following :
    (i). Instruction queue; (ii) Segment registers; (iii) General purpose registers
    (b) Find out machine codes for the following 8086 instructions.
    (i)   MOV AX, BX;   ii) ADD [BX], AX   (iii) ADD AX, 1234H
    (iv) ADC [BX] [1234], CX.

2. (a) Discuss the following 8086 instructions with example.
    (i) CWD   ii) IDIV   iii) AAS   iv) SAR
    (b) Write an ALP to arrange 'N' numbers in ascending order using bubble sort technique.

3. (a) Write program to check whether the entered string is palindrome or not. Accept the string through keyboard & print a suitable message, as "PALINDROME" or "NOT PALINDROME".
    (b) Differentiate between Macros & procedures with an example.

4. (a) What are assembler directives? Explain the following directives with example.
    i) INCLUDE   ii) ORG   iii) END P   iv) PROC
    (b) List out and explain bit manipulation instructions of 8086.

5. (a) Explain interrupt operation? Compare software & hardware interrupts in 8086.
    (b) Explain interrupt vector table of 8086.

6. (a) List and explain all ASCII related instructions in 8086 with examples.
    (b) Write an ALP to transfer 10 words of data using REP MOV SW instruction from source location to destination location. What is the role of SI, DI registers & DF bit.

7. (a) Draw & explain internal architecture of 80286 CPU?. Features of Pentium processor over previous processors.
    (b) Differentiate between 80386 & 80486 processor.

8. (a) With a neat diagram Explain the architecture of Pentium Processor
    (b) Compare dual core & Core due with respect to basic characteristics and architecture
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1 of 1

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R10

Set No: 4

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Time: 3 Hours   **Max Marks: 75**

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1. (a) List the major steps in developing an assembly language programming.
   (b) Explain the register set of 8086 processor.

2. (a) Write a delay loop which produces a delay of 500 µsec on an 8086 with a 5MHz clock.
   (b) Explain standard program structures in 8086 such as SEQUENCE, IF-THEN-ELSE, WHILE-DO and REPEATE-UNTIL.

3. (a) List the string primitives. Explain with suitable examples.
   (b) Write a 8086 ALP to reverse a string given below.
                    "ANDHRAPRADESH"

4. (a) What are assembler directives? Explain the following directives with examples.
                    i) DB(?)   ii) EQU 40h   iii) GLOBAL   iv) GROUP
   (b) Differentiate between the following instructions & explain with suitable examples.
                    i) Shift & Rotate   ii) HLT & INT-4   iii) JMP & CALL

5. (a) Explain interrupt operation? Compare software & hardware interrupts in 8086.
   (b) Write a scheme to generate NMI on power failure & Explain.

6. (a) List and Explain all string related instructions in 8086 with examples.
   (b) Write an ALP to find sum of even & odd numbers in a given array of N numbers.

7. (a) What is pipelining? How does cache memory enhance the performance of Pentium Microprocessors?
   (b) Discuss briefly the two modes of operation in 80386.

8. (a) Compare different Pentium Processors.
   (b) Compare dual core & Core due with respect to basic characteristics and architecture.
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