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**S.E. (Information Technology) Semester- IV (Revised Course 2007-08)**  
**EXAMINATION Nov/Dec 2019**  
**Microprocessors & Interfacing**

[Duration : Three Hours]

[Total Marks : 100]

**Instructions:**

- 1) Answer any 5 out of 8 questions with a minimum of one question from each Module.
- 2) Make suitable assumption if required.

**MODULE-I**

- Q.1**
- a) Draw and explain the architecture of 8086. [6]
  - b) Explain the following 8086 instructions. [6]  
a) LEA b) IN c) CMP
  - c) Write a 8086 program to find the largest number from a set of unordered list of 8-bit numbers. [8]
- Q.2**
- a) What are the differences between macro and procedure? [4]
  - b) Write the difference between the following instruction: [4]  
i) MOV CX,437AH and MOV CX, [437 AH]  
ii) MOV BL,437AH and MOV BL,DS:BYTEPTR[437 AH]
  - c) Explain the various flags of 8086 microprocessor? [6]
  - d) For the following instruction compute the address of memory operand for 8086 [6]  
i) MOV AX,[DX]  
ii) MOV AL,[BP+SI]  
iii)MOV [SI],BX  
Assume:  
CS=0100 BP=0100 DX=0020 ES=0300  
DS=0200 SS=0400 SI=0300 SP=0030

**MODULE-II**

- Q.3**
- a) Explain bit definition of TAG word and status word of 8087 Explain bit definition of TAG word and status word of 8087. [6]
  - b) Explain in brief, the different components of Numeric Execution Unit(NEU)of 8087 co-processor. [6]

- c) What is the major difference between 8086 operation in maximum mode and minimum mode? [2]
- d) Draw Read and Write Timing diagram of 8086 in minimum mode and explain? [6]
- Q.4** a) Write an 8087 Assembly language program to compute the roots of quadratic equation  $ax^2+bx+c=0$ . use appropriate comment to explain the logic used in a program. [8]
- b) With a neat block diagram, show the interconnection between 8086 and 8087 [6]
- c) Describe the conditions, which cause the 8086 to perform each of the following types of interrupts: Type 0, type 1, type 2, type 3, type 4. [6]

**MODULE-III**

- Q.5** a) Explain 8255 Programmable peripheral Interface IC with a functional block diagram. [6]
- b) Draw a neat block diagram explain the functional components of 8259A Programmable Interrupt Controller. [6]
- c) Explain the mode-1 and mode-3 operations of 8255. [8]
- Q.6** a) Explain in details the different modes of 8253/54. [10]
- b) Explain in brief different types of DMA data transfer. [6]
- c) Explain the interrupt sequence of 8086-8259. [4]

**MODULE-IV**

- Q.7** a) Explain the types of Descriptor types supported by 80386? [8]
- b) Describe with figures how 80286 generate physical address when dealing in real and protected mode of operation. [6]
- c) Explain basic features of Pentium processor. [6]
- Q.8** a) Draw and explain the paging mechanism 80386 in detail. [6]
- b) Compare & Describe major additions or improvement that 80486 have over 80386? [8]
- c) Explain the concept of Virtual memory [6]