Code: AC78   **Subject: ADVANCED MICROPROCE**

AMIETE – CS

Time: 3 Hours   **DECEMBER 2013**   Max. Marks: 1

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   **Choose the correct or the best alternative in the following:**   **(2×10)**

a. Which of the following microprocessor is not a 16-bit microprocessor?

     (A) 8086   **(B)** 80286
     (C) 8085   **(D)** 80186

b. Intel 8086 microprocessor operates at a frequency of

     (A) 1MHz and 50% duty cycle   **(B)** 3MHz and 25% duty cycle
     (C) 10MHz and 33% duty cycle   **(D)** 10MHz and 66% duty cycle

c. The data bus of any microprocessor is always _____

     (A) Unidirectional
     (B) bi-directional
     (C) Either unidirectional or bi-directional
     (D) None of the above

d. Compare to BIOS services execution speed of DOS operating system service is_____

     (A) Faster   **(B)** slower
     (C) Similar   **(D)** none of these

e. Intel 80486 is a _____ bit microprocessor

     (A) 32 bits   **(B)** 16 bits
     (C) 4 bits   **(D)** 8 bits

f. The tool used to convert source program into an object program is____

     (A) an assembler   **(B)** a loader
     (C) a linker   **(D)** a monitor

g. Direction flag is used with _____

(A) Branch Instruction   (B) Stack Instruction
(C) Arithmetic Instruction   (D) String Instruction

h. The test instruction perform bitwise_____ of the two operands

(A) OR   (B) AND
(C) XOR   (D) None of these

i. Total number of controlled flag used in 8086

(A) 3   (B) 5

(C) 8   (D) none of these

j. Clock generator of 8284 also generates

(A) Test   (B) Ready
(C) ALE   (D) None of these

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Explain the architecture of 8086 with suitable diagram.   **(8)**

b. Draw the register organisation of 8086 & explain typical application of each register.   **(8)**

Q.3 a. Explain the following instructions with eg: and indicate its addressing mode.
          (8)

(i)   MOV AX,BX
(ii) XCHG BL,83H[SI]
(iii) AAD 52H[BX], CX
(iv) POP [SI]

b. Explain the flags of 8086 and write the instructions for set and reset.   **(8)**

Q.4 a. What is an interrupt? Explain hardware and software interrupt of 8086.   **(8)**

b. What is conditional and unconditional jump instruction? Explain with example.
          (8)

Q.5 a. What are the functions of the following pins of numeric co-processor 8087: **(6)**
          (i) $\overline{BHE}$/S7
          (ii) READY
          (iii) INT
          (iv) RESET

b. Describe the maximum mode signals of 8086 and 8087 signals with the
    name.   **(6)**

c. Explain any two compare instructions used in 8087 instruction bit.   **(4)**

Q.6 a. Write an 8086 assembly language program to sort in descending order using
        selection sort.   **(6)**

b. Write an 8086 assembly language program to perform addition and subtraction
    of two signed numbers which are 64 bit in size.   **(6)**

c. Write the features of linking and single step execution in assembly program. **(4)**

Q.7 a. Write an 8086 assembly language program to compute factorial of a given 8 bit
         integer at a byte location using recursion.   **(8)**

b. Explain the various method of accessing IBM PC hardware.   **(4)**

c.   Explain various PTR directive used in 8086.   **(4)**

Q.8 a. Write a C program using DOS function to obtain size (in bytes) of a given file.
        Display the message indicating size of file on the screen.   **(8)**

b. Write the approach methodology & program in 'C' to create a subdirectory
    using DOS interrupt.   **(4)**

c. Write the overview of 8087 coprocessor.   **(4)**

Q.9 a. Write short notes on any **Two**:   **(8)**
        (i)   80286
        (ii) 80386
        (iii) 80486

b. Explain the architecture of Pentium processor with suitable block diagram. **(8)**