ROLL NO. _____

Code: AC78/AC133 Subject: ADVANCED MICROPROCESSORS

AMIETE – CS (Current & New Scheme)

Time: 3 Hours **December - 2017** **Max. Marks: 100**

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 alterative in the following (2×10)

a. Which is an incorrect Rules and Restriction of using the MOV instruction?
(A) MOV instruction allows copying immediate data into the segment register.
(B) Operand used in MOV instruction must be of same size
(C) MOV Instruction does not affect any Flag
(D) In MOV instruction both operands cannot be a memory operand

b. The maximum memory that can be supported by 80386 in real mode is
(A) 16 M bytes **(B)** 1 K bytes
(C) 1 M byte **(D)** 1 G byte

c. In variable port addressing, address of the port is implied to be the contents of
(A) AX Register **(B)** AL Register
(C) BX Register **(D)** None of these

d. The mnemonic STD is used to
(A) Set the IE flag **(B)** Set & Clear DF flag
(C) Both **(A)** and **(B)** **(D)** None of these

e. The Label is a
(A) Identifier **(B)** Operand
(C) Op code **(D)** Mnemonics

f. After loading the .COM program DOS initialises IP to _____
(A) 0100H **(B)** 0000H
(C) 1000H **(D)** 1111H

g. The data bus of any microprocessor is always _____
(A) Unidirectional **(B)** Either unidirectional or bi-directional
(C) bi-directional **(D)** None of these

h. The "D" bit in Status register of Intel's 8086 microprocessor is to _____.
(A) increment/decrement SI and DI pointers
(B) disable pointers SI and DI
(C) disable interrupts
(D) None of these

i. The PCI bus is the important bus found in all the new Pentium systems because
(A) It has plug and play characteristics
(B) It has ability to function with a 64 bit data bus
(C) Any Microprocessor can be interfaced to it with PCI controller or bridge
(D) All of these

j. Silent feature of Pentium is
(A) Superscalar architecture **(B)** Super pipelined architecture
(C) CISC architecture **(D)** All of these

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

Q.2 a. Describe the need for templates in instruction coding of 8086 and explain the various fields used in template for data transfer between a registers. **(8)**

b. What are the functions of the following pins of INTEL's – 8086? **(8)**
(i) MN/$\overline{MX}$ (ii) READY
(iii) $\overline{TEST}$ (iv) $\overline{BHE}$
(v) CLK (vi) RESET

Q.3 a. Explain following instructions in 8086 family and their effect on flag. **(8)**
(i) CWD (ii) IDIV
(iii) AAS (iv) SAR
(v) LOOP (vi) SAHF
(vii) BOUND (viii) IMUL

b. Give the applications of PUSH and POP instructions and I/O port instructions. **(8)**

Q.4 a. Describe various software interrupts of 8086 in brief. Give the sequence of interrupt execution. **(8)**

b. Explain with examples the inter segment return and intra segment return instructions. **(8)**

Q.5 a. Describe the maximum mode signals of 8086 and 8087 signals with the same name. **(6)**

b. Explain the need for an arithmetic co-processor in a microcomputer system. **(5)**

c. Describe the programmer's view of control register and status register of 8087. **(5)**

Q.6 a. Write an 8086 assembly language program to sort the following hexadecimal data 44H, 33H, 55H, 22H, 11H using bubble sort technique. **(8)**

b. Why do we need assembler directives and explain the following assembler directives. **(8)**
(i) .DB (ii) ALIGN (iii) END

Q.7 a. Write an 8086 assembly language program to clear / scroll the screen and position of the cursor. **(8)**

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

c. Write short notes on assembly language programmes using BIOS Services. **(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 an assembly language program by using 8087 instructions to compute the length of hypotenuse of a right angled triangle. Comment the code. **(8)**

Q.9 a. Write a C program to create a subdirectory if it does not exist, using DOS interrupt. A suitable message should be displayed on CRT depending on the success or failure of the program. **(8)**

b. What is memory paging? Explain, how it is used for memory addressing in 80386? **(8)**