ROLL NO. _____

Code: AC78 **Subject: ADVANCED MICROPROCESSORS**

AMIETE – CS (NEW SCHEME)

Time: 3 Hours **JUNE 2012** **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 alternative in the following: **(2×10)**

a. The address bus of 8088 is

(A) 8 bit **(B)** 16 bit
(C) 4 bit **(D)** none of the above

b. The number of control flags in 8086 is

(A) 3 **(B)** 5
(C) 8 **(D)** none of the above

c. MOV [DI], OAC24 H is a

(A) 2 byte instruction. **(B)** 3 byte instruction.
(C) 4 byte instruction. **(D)** none of the above

d. The TEST instruction performs bitwise _____ of the two operands.

(A) OR. **(B)** AND.
(C) XOR. **(D)** none of the above

e. 80287 is a

(A) processor **(B)** Co- processor
(C) Micro controller **(D)** none of the above

f. REP is a

(A) instruction **(B)** Prefix
(C) post fix **(D)** none of the above

g. Execution speed of DOS operating system services is little _____ compared to that of BIOS services

(A) slower **(B)** faster
(C) similar **(D)** none of the above

h. The 8284 CLK generator also generates

(A) Ready **(B)** Test
(C) ALE **(D)** none of the above

i. The NMI is

(A) +ve edge sensitive **(B)** -ve edge sensitive
(C) +ve level & edge sensitive **(D)** none of the above

j. JL / JNGE label transfers execution control to address label if neither SF=1 _____ OF=1

(A) nor **(B)** or
(C) XOR **(D)** none of the above

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

Q.2 a. Explain the following pins **(10)**
(i) $\overline{BHE}$ / S7
(ii) MN / $\overline{MX}$
(iii) DT / $\overline{R}$
(iv) $\overline{DEN}$
(v) $\overline{TEST}$

b. Explain any three addressing modes in a processor. Give an example for each. **(6)**

Q.3 a. Give an example to illustrate the following:- **(8)**
(i) Data transfer instruction between register and memory
(ii) Data transfer instruction between Segment register and memory
(iii) Data transfer with I/O ports
(iv) Data transfer using exchange instruction.

b. Explain AAA and DAA instructions with example. **(4)**

c. Describe the working of MOVS and CMPS instructions. **(4)**

Q.4 a. Explain conditional and unconditional jump instructions. Mention any two assembly instructions for each. **(6)**

b. What is an interrupt? Explain hardware interrupt of 8086. **(5)**

c. Mention various types of exceptions while executing 8086 instructions. **(5)**

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

b. Describe with examples the data types available in 8087. Give the range of values that can be represented by these data type. **(6)**

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

Q.6 a. Why do we need assembler directives and explain the following assembler directives. **(6)**
(i) DW
(ii) DATA
(iii) ALIGN
(iv) CODE

b. Write a program in assembly language for computation of GCD for 3 nos. **(6)**

c. Explain the features of linking and single-step execution in assembly programme. **(4)**

Q.7 a. Explain the various methods of accessing IBM PC hardware. **(4)**

b. Write an 8086 assembly language to computes factorial of a given 8 bit integer at a byte location using recursion. **(8)**

c. Write short notes on assembly language programmes using BIOS Services. **(4)**

Q.8 a. Using DOS function call, write a C program to obtain the size of given file. Message should be displayed on the screen indicating the size in hexadecimal and decimal format. If the file is not found suitable error message should be displayed. **(8)**

b. Write a assembly language program using the co-processor instructions to compute hypotenuse. **(4)**

c. Explain features of Co-processor. **(4)**

Q.9 a. What are the salient features of protected virtual address mode? **(6)**

b. Write short note on. **(10)**
(i) 80486
(ii) 80386