ROLL NO. _____

Code: AE66/AC66/AT66 Subject: MICROPROCESSORS & MICROCONTROLLERS

AMIETE – ET/CS/IT

Time: 3 Hours **DECEMBER 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. Which of the following is a 16 bit microprocessor

(A) 8085 **(B)** 8086
(C) 6809 **(D)** Z-80

b. The program counter is used to

(A) Store the address of stack
(B) Store the instruction
(C) Point the address of next instruction to be executed
(D) Address of data

c. Which flag is affected by data transfer instruction

(A) Only carry Flag **(B)** Only zero Flag
(C) No flag is affected **(D)** All Flags are affected

d. LDAX B has the addressing mode

(A) Immediate addressing mode **(B)** Indirect addressing mode
(C) Direct addressing mode **(D)** Implicite addressing mode

e. Interrupt of 8085 is

(A) CLK **(B)** SOD
(C) READY **(D)** TRAP

f. The control word register of 8255 PPI is of

(A) 8 bits **(B)** 16 bits
(C) 10 bits **(D)** 32 bits

g. Which of following is DMA Controller

(A) 8085 **(B)** 8257
(C) 8255 **(D)** 8259

h. To operate 8085 at 3MHz, the crystal should have frequency

(A) 3 MHz **(B)** 4 MHz
(C) 5 MHz **(D)** 6 MHz

i. Which port of 8255 acts as bidirectional port in input-output mode 2.

(A) Port A **(B)** Port B
(C) Port C **(D)** Port A & B

j. The 8051 is a

(A) 8 bit Microcontroller **(B)** 10 bit Microcontroller
(C) 16 bit Microcontroller **(D)** 32 bit Microcontroller

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

Q.2 a. Explain the programming Model of 8085. **(8)**

b. Write the functions of the following instructions of 8085 with examples. **(8)**
(i) CMA
(ii) DAD
(iii) LDAX R_P
(iv) XTHL

Q.3 a. Explain the operation that a CPU internally performs while executing CALL address instructions. **(4)**

b. Give the concept of chip selection. **(4)**

c. What is need to multiplex ADDRESS/ DATA bus $AD_7 - AD_0$? **(4)**

d. Explain any two conditional return instructions. **(4)**

Q.4 a. Two numbers 55H and 50H are stored in memory 2000H and 2001H respectively. **(8)** Write an assembly language program to add these numbers and store the result in memory location 2002H.

b. Write a program to find smallest number in a series of ten numbers and store this result in a memory. **(8)**

Q.5 a. Explain the various modes of operation of IC 8255(PPI). **(8)**

b. Explain the need and use of EI and DI instructions. **(4)**

c. Give the features of TRAP interrupt. **(4)**

Q.6 a. Explain the operation of 8279 keyboard and display controller in the 8085 system. **(8)**

b. Write short Notes on
(i) Logic controller interface **(4)**
(ii) Interfacing of I/O device **(4)**

Q.7 a. What is need for interrupt controller? Give description of block diagram of 8259. **(8)**

b. What is DMA? Explain the sequence of operations of IC 8257. **(8)**

Q.8 a. Explain the format of serial data transfer. **(4)**

b. Write operating features of 8251. **(4)**

c. Describe the various modes of operation of IC 8253. **(8)**

Q.9 a. Write the difference between microcontroller and microprocessor. Enumerate main features of 8051 microcontroller. **(8)**

b. Explain various addressing modes of 8051. **(8)**