ROLL NO. _____

Code: DE60/DC68 Subject: MICROPROCESSORS & MICROCONTROLLERS

DipIETE – ET/CS

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. The decimal value of $(ABCD.EF)_{16}$ is given by

(A) 5000.55 **(B)** 43981.933
(C) 53492.33 **(D)** 5.93359

b. The action taken when NOP instruction is executed is

(A) Time elapse **(B)** Negative add
(C) Two's complement **(D)** Number of pins

c. To address 4096 ports the following number of address lines are needed

(A) 14 **(B)** 12
(C) 10 **(D)** 8

d. 8085 has the following number of software interrupts

(A) 1 **(B)** 5
(C) 8 **(D)** 10

e. The instruction which helps in serial communication is

(A) RIM **(B)** NOP
(C) XCHG **(D)** HLT

f. The no. of ports which transfer data with handshake signals at 8255 is

(A) 1 **(B)** 2
(C) 3 **(D)** 4

g. Expansion of ISR in 8259 is

(A) Inland Service Register **(B)** India Serious Register
(C) Interrupt Service Register **(D)** In Service Register

h. DMA operation to transfer a few bytes at a time is called

(A) Flash **(B)** Cycle stealing
(C) Burst **(D)** One shot

i. The number of modes in which 8253 is used are

(A) 5 **(B)** 8
(C) 6 **(D)** 2

j. The difference between microprocessor and microcontroller rises because microcontroller has

(A) No memory **(B)** Memory inside
(C) 68 pins **(D)** 8 ports

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

Q.2 a. Describe the meaning of Programmer's view of 8085 and explain the functions of all registers. **(8)**

b. Explain the logical group of instruction with one example each. **(8)**

Q.3 a. Give the Branch group of instructions with examples. **(8)**

b. Give the details of 8085 architecture with the help of a block diagram. **(8)**

Q.4 a. Write an assembly language program to add two 32 bit numbers (both Binary and BCD), give appropriate comments. **(8)**

b. Multiply two binary numbers using any one method. Provide appropriate comments. **(8)**

Q.5 a. Explain in detail the hardware interrupts used in 8085. **(8)**

b. Give the structure of RIM and SIM instructions and their uses. **(8)**

Q.6 a. Describe with the use of block diagram the working of 8255 PPI and give the control word to output from pin 6 of port C. **(8)**

b. Explain the pins of 8259 PIC. What are the functions of CAS pins? **(8)**

Q.7 a. Give the control word of 8253. Explain the waveform of mode 0 operation. **(8)**

b. Explain Asynchronous transmission/reception with variable speeds of operation in 8251. **(8)**

Q.8 a. List the main features of Intel-8051. **(10)**

b. Explain PSW-register of 8051micro-controller. **(6)**

Q.9 Write a short note on:

(i) Logic Controller Interface
(ii) Need of Interrupt Controller **(2×8)**