ROLL NO. _____

Code: DE60/DC68 Subject: MICROPROCESSORS & MICROCONTROLLERS

DipIETE – ET/CS

Time: 3 Hours **DECEMBER 2014** **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. Nibble is a group of

(A) 8 bits **(B)** 16 bits
(C) 64 bits **(D)** 4 bits

b. For 8085 microprocessor word length is of

(A) 8 bits **(B)** 16 bits
(C) 32 bits **(D)** 64 bits

c. Number of the times the instruction sequence below will loop before coming out of loop is

```
MOV AL, 00h
A1: INC AL
JNZ A1
```

(A) 00 **(B)** 256
(C) 255 **(D)** 64

d. Which interrupts has highest priority?

(A) INTR **(B)** RST6.5
(C) RST 7.5 **(D)** TRAP

e. Microprocessor can differentiate

(A) positive number and negative number
(B) positive number and bit pattern
(C) negative number and bit pattern
(D) None of these

f. Op code is a

(A) binary code **(B)** Gray code
(C) ASCII code **(D)** NOP code

g. 8255 include _____ programmable mode(s).

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

h. 8259 can be expanded to 64 interrupt requests by using ____ master and ____ slave units.

(A) 1, 8 **(B)** 2, 4
(C) 8, 8 **(D)** 1, 64

i. 8251 is a

(A) UART
(B) USART
(C) Programmable Interrupt controller
(D) Programmable interval timer/counter

j. Which pins are general purpose I/O pins during mode-2 operation of the 8255?

(A) PA0 – PA7 **(B)** PB0-PB7
(C) PC3-PC7 **(D)** PC0-PC2

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

Q.2 a. Explain the arithmetic group of instructions with one example each. **(8)**

b. Enlist internal data operations and explain utility of registers for 8085 microprocessor. **(8)**

Q.3 a. Give the details of 8085 architecture with the help of a block diagram. **(8)**

b. Explain the addressing modes of 8085 microprocessor. **(8)**

Q.4 a. Write an 8085 assembly program to find average of 'n' integers. **(8)**

b. Discuss linear search approach for assembly programmes. **(8)**

Q.5 a. Explain the need of interrupt masking in 8085. **(8)**

b. "Assuming the microprocessor is completing an RST 7.5 interrupt request, check to see if RST is pending. If it is pending, enable RST 6.5 without affecting any other interrupts, otherwise, return to main program". Write a program for this using suitable instructions. **(8)**

Q.6 a. Draw and explain the block diagram of 8279. **(8)**

b. Explain MODE 0 of 8255 CHIP. **(8)**

Q.7 a. Answer the following: **(3×3)**
(i) Why interrupt controller is required?
(ii) Enlist the features of 8259.
(iii) How 8259 can be programmed?

b. Explain the 8257 DMA controller in detail. **(7)**

Q.8 a. What is the function of 8253 Programmable Interval Timer? Discuss any one of its applications in detail. **(8)**

b. Describe asynchronous data transmission and reception with neat diagram **(8)**

Q.9 a. What are the salient features of 8051 micro-controller? Explain with a neat block diagram. **(8)**

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