ROLL NO. _____

Code: DE60/DC68 Subject: MICROPROCESSORS & MICROCONTROLLERS

DipIETE – ET/CS

Time: 3 Hours **DECEMBER 2013** **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. 8085 microprocessor is having address lines

(A) 8 **(B)** 16
(C) 32 **(D)** none of these

b. Maximum memory which can be connected with 8085 microprocessor is

(A) 32KB **(B)** 1MB
(C) 64 KB **(D)** 10KB

c. INTEL's 8251 is a _____.

(A) USART **(B)** DMA
(C) Timer **(D)** Display controller

d. IO/$\overline{M}$ signal is HIGH during

(A) Interfacing of 8279 with 8085 **(B)** DMA transfer
(C) FIFO RAM addressing **(D)** Write back

e. Stack pointer is a:

(A) 8 bit register **(B)** 16 bit register
(C) 4 bit register **(D)** 24 bit register

f. Which of the following is a interrupt of microprocessor 8085

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

g. What is the addressing mode used in instruction MOV M,C

(A) Direct **(B)** Implicit
(C) Indirect **(D)** Immediate

h. After completing the execution, processor returns to

(A) Halt state **(B)** Execute state
(C) Interrupt state **(D)** Fetch state

i. Data transfer between memory and I/O port directly without going through microprocessor is called as

(A) Machine cycle **(B)** DMA
(C) Busy waiting **(D)** Address enable

j. RIM instruction is used to

(A) disable to interrupts 7.5,6.5,5.5
(B) enables the interrupts 7.5,6.5,5.5
(C) read in the serial input data
(D) read instruction memory

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

Q.2 a. Discuss and Differentiate between a Microprocessor and a Microcontroller. **(8)**

b. Convert the following: **(8)**

(i) $(1011.011)_2$ to decimal form
(ii) $(0.75)_{10}$ to binary form

Q.3 a. Discuss the 16 bit registers of 8085 microprocessor with their function. **(8)**

b. Explain the process of addressing I/O – ports in 8085 microprocessor. **(8)**

Q.4 a. Write an 8085 assembly program to add 2 multibyte numbers which are stored in locations 2500H and 3000H. **(8)**

b. Write an 8085 assembly language program to find the smallest number in an array of ten elements. **(8)**

Q.5 a. Specify any four interrupts commonly used by the 8085 microprocessor. Explain functions of each. **(8)**

b. Explain function of the following pins in 8085 **(8)**
(i) ALE (ii) SOD (Serial Data Out)
(iii) READY (iv) HOLD

Q.6 a. Explain the control ports of 8255. **(8)**

b. Write an 8085 assembly program to evaluate two 4-variables Boolean expression using logic controller interface. **(8)**

Q.7 a. Explain the different registers used in 8259. **(8)**

b. Explain the pin-description of 8257 controller. **(8)**

Q.8 a. Explain 8253 mode-1 operation. **(8)**

b. Explain the procedure of identifying the command in control port of 8251. **(8)**

Q.9 a. Explain data memory structure of an 8051. **(8)**

b. Explain programmer's view of 8051. **(8)**