ROLL NO.

Code: DE60/DC68/DE111/DC111
Subject: MICROPROCESSORS & MICROCONTROLLERS

DipIETE – ET/CS (Current & New Scheme)

Time: 3 Hours | **December 2016** | **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. What is meant by ALU?
(A) Arithmetic logic upgrade **(B)** Arithmetic logic unsigned
(C) Arithmetic local unsigned **(D)** Arithmetic logic unit

b. Which one of the following is not a vectored interrupt?
(A) TRAP **(B)** INTR
(C) RST 7.5 **(D)** RST 3

c. 8085 microprocessor has how many pins?
(A) 30 **(B)** 39
(C) 40 **(D)** 41

d. In 8085 microprocessor, the RST6 instruction transfer programme execution to following location
(A) 0030H. **(B)** 0024H.
(C) 0048H. **(D)** 0060H.

e. In 8085, name of the 16 bit register is
(A) stack pointer **(B)** program counter
(C) Both **(A)** and **(B)** **(D)** None of these

f. What is SIM?
(A) Select interrupt mask **(B)** Sorting interrupt mask
(C) Set interrupt mask **(D)** None of these

g. Output of the assembler in machine codes is referred to as _____.
(A) Object program **(B)** Source program
(C) Macroinstruction **(D)** Symbolic addressing

h. Processor status word of 8085 microprocessor has five flags?
(A) S, Z, AC, P, CY **(B)** S, OV, AC, P, CY
(C) S, Z, OV, P, CY **(D)** S, Z, AC, P, OV

i. The first machine cycle of an instruction is always
(A) A memory read cycle **(B)** A fetch cycle
(C) An I/O read cycle **(D)** A memory write cycle

j. The address bus width of a microprocessor which is capable of addressing 64 Kbytes of the memory is
(A) 8 **(B)** 12
(C) 16 **(D)** 20

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

Q.2 a. Explain pin diagram of 8085. **(8)**

b. What do you mean by addressing mode? Explain different addressing modes supported by 8085 with one example of each. **(8)**

Q.3 a. What are the various registers of 8085? Discuss their function. **(8)**

b. What are various status flags provided in 8085? Discuss their role. **(8)**

Q.4 a. What are the various types of data formats for Intel 8085 instructions? Give examples for each type of data format. **(6)**

b. Write a program for 8085 to add two multi byte numbers. Also draw its flow-chart. **(10)**

Q.5 a. Explain with diagram the architecture of 8085 interrupt system. **(10)**

b. Which types of arithmetic and logical operations are performed by ALU? **(6)**

Q.6 Write an assembly language program to add two 8-Bit numbers which are given in question, the sum may be of 16-Bits.
Add 98 H and 9A H
The 1^{st} number 98 H is in the memory location 2501 H.
The 2^{nd} number 9A H is in the memory location 2502 H.
Numbers are represented in hexadecimal. **(16)**

Q.7 a. What is DMA data transfer scheme? Discuss the function of DMA data controller 8257. **(8)**

b. What are different operating modes of 8255? **(8)**

Q.8 a. What do you mean by Programmable Interval Timer (PIT)? Explain with a block diagram the working of 8253 chip. **(8)**

b. Explain RIM and SIM instructions. **(8)**

Q.9 a. What are the pointers in 8051? Explain the use of each pointer. **(8)**

b. Discuss various features of 8051 microcontroller. **(8)**