Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–IV • EXAMINATION – SUMMER • 2014

Subject Code: X40901 **Date: 17-06-2014**

Subject Name: Microprocessor and Interfacing

Time: 10:30 am - 01:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1

(a) Draw and explain the functional block diagram of 8085 microprocessor (10)

(b) Explain stack pointer and program counter (4)

Q.2

(a) With the help of appropriate examples explain the instructions which are included in 'ARITHMETIC' group (7)

(b) Draw and discuss the timing diagram of MVI instruction (7)

OR

(b) List the primary four operations that are performed by microprocessor. Also explain address bus, data bus and control bus (7)

Q.3

(a) Write an ALP to exchange the contents of M.L. 4060H and 4070H (5)

(b) A certain array consisting of 10 bytes starts from M.L. 4050H. Write an ALP to add all the elements of the array and store the result in M.L. 4080H. Assume that the result does not exceed 8 bits. Draw flowchart (9)

OR

Q.3

(a) Draw and explain the functional block diagram of 8255 programmable peripheral interface. Explain its I/O and BSR control word. Also discuss its input and output control signals in MODE 1. (12)

(b) Write an program segment to set bit PC_7 and PC_2 using BSR control word (2)

Q.4

(a) Discuss the different types of interrupts available with 8085 microprocessor State their priorities. (7)

(b) Explain how a delay can be generated using a single register and a register pair. Write an ALP to generate a delay of 1 ms using a single register. Assume the clock frequency to be 2 MHz (7)

OR

Q.4

(a) State and explain the different modes in which 8254 can operate. Also explain the read back command format. (9)

(b) Explain successive approximation type ADC in brief (5)

Q.5

(a) Explain the following with reference to serial transmission (6)
(i) Synchronous and Asynchronous transmission (ii) Simplex and duplex transmission (iii) Baud rate

(b) Draw and explain the block diagram of keyboard display controller 8279 (8)

OR

Q.5

(a) Give the format of RIM and SIM instructions. Explain the function of each every bit (7)

(b) What is DMA? Explain the working of DMA controller in master mode and slave mode (7)

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