

Time: 3 Hours

**JUNE 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. In 8279, the size of Scan Line (SL) output pins is \_\_\_\_\_ and Return Line (RL) input pins is \_\_\_\_\_
- (A) 3, 6 (B) 4, 4  
(C) 8, 8 (D) 4, 8
- b. CMP M instruction of 8085 means
- (A) Complement the memory data  
(B) Complement the carry flag  
(C) Compare memory with accumulator  
(D) Compare if minus
- c. One of the following address is automatically loaded into PC when the interrupt comes on TRAP is
- (A) 003C (B) 0024  
(C) 0034 (D) 002C
- d. Which of the following load/retrieve methods best describe a microprocessor stack
- (A) FIFO (B) LILO  
(C) LIFO (D) Buffer
- e. Which of the following technique supports fast transfer of blocks of data
- (A) DMA (B) NMI  
(C) HDL (D) FIFO

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- f. In 8251,  $C/D = 1$ ,  $R_D = 1$  and  $WR = 0$  means \_\_\_\_\_
- (A) write to control register                      (B) read status register  
(C) write to transmit buffer                      (D) none of these
- g. MVI A, 02 H is an example of ..... addressing mode.
- (A) Implicit    (B) Immediate  
(C) Direct    (D) Register
- h. 8051 has \_\_\_\_\_ register banks and \_\_\_\_\_ ports.
- (A) 4, 2    (B) 8, 4  
(C) 4, 4    (D) 8, 2
- i. When 8257 becomes the master, it outputs 1 on \_\_\_\_\_ only during the first four clock cycles of DMA machine cycle.
- (A) TC    (B) ADSTB  
(C) AEN    (D) HLDA
- j. In 8253 Timer, the selection of the following pins  
 $A1=0$ ,  $A0=0$ ,  $RD=0$ ,  $WR=1$ ,  $CS=0$  means
- (A) Read Counter 0                                      (B) Read Counter 1  
(C) Read Counter 2                                      (D) No operation

**Answer any FIVE Questions out of EIGHT Questions.**

**Each question carries 16 marks.**

- Q.2** a. Write an assembly language program to move a block of data from one section of memory to another section of memory using 8085 microprocessor. Draw the flow chart. (8)
- b. Write an assembly language program to convert BCD to binary. (8)
- Q.3** a. Write short notes on signed and unsigned binary integers. (4)
- b. Explain the following instructions with the help of suitable examples  
(i) PUSH    (ii) XCHG  
(iii) RLC    (iv) DCX (8)
- c. Mention various registers used in 8085. (4)
- Q.4** a. Draw the waveforms of memory read and memory write machine cycles. (3+3)
- b. Compare memory-mapped I/O and I/O mapped I/O. (4)
- c. Explain branch group of instruction. Mention any two conditional and unconditional jump instructions. (2+4)

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- Q.5** a. Mention various types of interrupts in 8085. Give their respective priorities, mode (edge or level) and interrupt type (vectored or non-vectored). (6)
- b. Explain RIM and SIM instructions used in interrupt. (5)
- c. Explain the control port of 8255. (5)
- Q.6** a. Explain the features of logic controller interface. Write a program for decimal counter using logic controller. (8)
- b. Compare the following:-  
(i) Interface keyboard using tristate buffer (6)  
(ii) Interface a matrix keyboard (2)
- c. Mention any two limitations of matrix key board. (2)
- Q.7** a. Explain the role of Initialization command words (ICW1 to ICW4) used in 8259. (8)
- b. Give the format of control register and status register of 8257. (4)
- c. Explain any two data transfer types used in DMA. (4)
- Q.8** a. Explain Mode 0, Mode1, Mode 2 and Mode 3 of 8253 timer. (8)
- b. Explain the MODE and COMMAND instructions of 8251. (4)
- c. Compare synchronous and asynchronous transmissions in 8251. (4)
- Q.9** a. Explain the various bits of PSW register of 8051. (4)
- b. Explain the following addressing modes of 8051(with examples)  
(i) Immediate  
(ii) Direct  
(iii) Indexed  
(iv) Implied (8)
- c. Draw the block diagram of 8051. (4)