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SARDAR PATEL UNIVERSITY

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B.Sc. (5th Sem) Examination - 2013 [CBCS]

12th November, 2013

10:30 am - 1:30 pm

US05CINS01 (Instrumentation)

8085 Microprocessor Architecture and Programming - 1

Maximum Marks: 70

Que 1 **Each question below gives a multiple choice of answers. Choose the most appropriate one.** **[10]**

1 Program Counter is _____ - bit Register.
   i. 8 ii. 16
   iii. 32 iv. None of the above

2 The 74LS245 includes _____ Bus Drivers.
   i. 4 ii. 8
   iii. 16 iv. None of the above

3 Crystal frequency of 8085 uP is _____.
   i. 3 KHz ii. 6 KHz
   iii. 3 MHz iv. None of the above

4 ADI is _____ - byte instruction.
   i. 1 ii. 2
   iii. 3 iv. None of the above

5 _____ Flag is affected during Data Transfer Operations.
   i. Carry ii. Zero
   iii. Sign iv. None of the above

6 The Data Bus is a group of _____ lines.
   i. 4 ii. 8
   iii. 16 iv. None of the above

7 _____ Signal is used to delay the uP Read or Write cycles until a slow - responding peripheral is ready to send or accept data.
   i. HOLD ii. RESET OUT
   iii. READY iv. None of the above

8 NOP is _____ byte instruction.
   i. 1 ii. 2
   iii. 3 iv. None of the above

9 If zero flag is 1, then _____ flag is also 1.
   i. Carry ii. Zero
   iii. Sign iv. None of the above

10 The Address Bus is a group of _____ lines.
   i. 8 ii. 12
   iii. 14 iv. None of the above

P.T.O

Que 2 Short Questions (Attempt any TEN) **[20]**

1 What is Compiler?
2 Explain Memory - Mapped I/O.
3 If 8085 adds 87_H and 79_H, specify the contents of the accumulator and the status of the S, Z, and CY flags.
4 What operation can be performed by using the instruction SUB A? Specify the status of Z and CY.
5 What is an Interpreter?
6 Specify the number of registers and memory cells in a 128 x 4 memory chip.
7 If the clock frequency is 5 MHz, how much time is required to execute 18 T - states?
8 What operation can be performed by using the instruction XRA A? Specify the status of Z and CY.
9 Explain the function of Program Counter and Stack Pointer.
10 The memory address of the last location of a 1K byte memory chip is given as $FBFF_H$. Specify the starting address.
11 Draw schematic to generate Read/Write Control Signals for Memory and I/O.
12 Explain SUI Instruction.

Que 3 **[A]** Explain 8085 Programming Model. **[05]**

[B] Explain the difference between the Machine Language and the Assembly Language of the 8085 microprocessor. What is an Assembler? What are Low - and High Level Languages? **[05]**

OR

[C] Give 8085 Instruction Classification. **[05]**

[D] Write a note on Data Format. **[05]**

Que 4 **[A]** Discuss Peripheral - Mapped I/O. **[05]**

[B] Give an account of Encoder. **[05]**

OR

[C] Explain Octal Bus Transceiver with necessary Logic Diagram and Function Table. **[05]**

[D] Write a note on Microprocessor - Initiated Operations and 8085 Bus Organization. **[05]**

Que 5 **[A]** Write a detailed note on 8085 Microprocessor. **[10]**

OR

[B] Explain the need to Demultiplex the bus AD_7 - AD_0. **[05]**

[C] With necessary Timing Diagram, explain how byte from memory is transferred to MPU. **[05]**

Que 6 **[A]** Write a program to perform the following functions: **[05]**
Load the number FB_H in register E. Load the number $C9_H$ in register B. Increment the contents of register C by one. Add the contents of registers B and E and display the sum at output PORT1.

[B] Write instructions to load 65_H in register C, and 92_H in A. Display the 65_H at PORT0 and 92_H at PORT1. **[05]**

OR

[C] Write a program to do the following: **[05]**
Load the number 40_H in register C and $A9_H$ in register D. Subtract $A9_H$ from 40_H. Display the answer at PORT1.

[D] Load the data byte $A8_H$ in register C, mast the high - order bits (D_7 - D_4), and display the low - order bits (D_3 - D_0) at an output port. **[05]**

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