

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 [10]
one.

- 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 128×4 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, mask the high - order bits ($D_7 - D_4$), and display the low - order bits ($D_3 - D_0$) at an output port. **[05]**