

SARDAR PATEL UNIVERSITYB. Sc. - 5th Semester (Instrumentation)**US05CINS01** (8085 Microprocessor Architecture and Programming -1)

Day and Date: Monday, 22/10/2018

Time: 10:00 am to 01:00 pm

Maximum Marks: 70

Que 1 Objective Type Questions.**[10]**

- 1 ____: 16 - bit registers used to hold memory addresses.
 - a) Accumulator and Program counter
 - b) Accumulator and Stack pointer
 - c) Flag and Accumulator
 - d) Program counter and Stack pointer
- 2 The microprocessor uses the ____ register to sequence the execution of the instructions.
 - a) Accumulator
 - b) Flag
 - c) Program counter
 - d) Stack pointer
- 3 The ____ register is used as a memory pointer. It points to a memory location in R/W memory.
 - a) Flag
 - b) Accumulator
 - c) Stack pointer
 - d) Program counter
- 4 The address bus is a group of ____ lines.
 - a) 4
 - b) 8
 - c) 12
 - d) 16
- 5 In memory-mapped I/O, the microprocessor uses ____ address lines to identify an I/O device.
 - a) 4
 - b) 8
 - c) 12
 - d) 16
- 6 In peripheral-mapped I/O, the microprocessor uses ____ address lines to identify an I/O device.
 - a) 4
 - b) 8
 - c) 12
 - d) 16
- 7 ____: general purpose interrupt.
 - a) INTR
 - b) RST 7.5
 - c) TRAP
 - d) RST 5.5
- 8 ____: nonmaskable interrupt.
 - a) INTR
 - b) RST 7.5
 - c) RST 6.5
 - d) TRAP
- 9 ____: copies data from source register to destination register.
 - a) MOV
 - b) MVI
 - c) IN
 - d) OUT
- 10 ____: 1-byte instruction.
 - a) ADD
 - b) ADI
 - c) SUI
 - d) IN

Que 2 Short Questions (Attempt Any Ten)

[20]

- 1 What is flag register?
- 2 Enlist 8-bit and 16-bit registers of 8085 microprocessor. Explain accumulator.
- 3 Explain briefly machine language and assembly language.
- 4 Draw 8085 bus structure.
- 5 Enlist the primary four operations performed by microprocessor.
- 6 Explain the function of data bus and address bus.
- 7 Explain function of ALE and READY signal of 8085 microprocessor.
- 8 Enlist signals associated with direct memory access (DMA). Explain briefly them.
- 9 What is the function of CLK (OUT) and RESET OUT signals of 8085 microprocessor?
- 10 Enlist data transfer instructions. Explain any one.
- 11 Explain 8085 addressing modes with example.
- 12 Write a program to load hexadecimal number 37_H in register B, and display the number at the output port labelled PORT 1.

- Que 3** [A] Write a note on 8085 programming model with necessary diagram. **[05]**
[B] Discuss Instruction word size and data format. **[05]**

OR

- [C] Give an account of 8085 instruction set. **[05]**
[D] Write a note on 8085 hardware model with necessary diagram. **[05]**

- Que 4** [A] Write a note on latch as a storage element. **[05]**
[B] Discuss decoder and encoder with respect to 8085 microprocessor. **[05]**

OR

- [C] Write a note on tri-state devices and buffer. **[05]**
[D] Write a note on peripheral-mapped and memory-mapped I/O. **[05]**

- Que 5** [A] Draw schematic of latching low-order address bus of 8085 microprocessor. Explain it. **[05]**
[B] Draw schematic to generate read/write control signals for memory and I/O. Explain it. **[05]**

OR

- [C] With necessary diagram, write a detailed note on 8085 microprocessor. **[10]**

- Que 6** [A] Write an assembly language program to load the hexadecimal number 9B_H and A7_H in register D and E, respectively, and add the numbers. If the sum is greater than FF_H, display 01_H at output PORT 0; otherwise, display the sum. **[05]**
[B] Load the data byte 8E_H in register D and F7_H in register E. Mask the high-order bits (D₇-D₄) from both the data bytes, exclusive-OR the low-order bits (D₃-D₀), and display the answer. **[05]**

OR

- [C] Write a note on logic operations. **[05]**
[D] Load the data byte 6C_H in register B and AB_H in register C. Mask the low-order bits (D₃-D₀) from both the data bytes, AND the high-order bits (D₇-D₄), and display the answer. **[05]**