**Professional Course Examination, November/December 2019**

( 5th Semester )

## BACHELOR OF COMPUTER APPLICATIONS

Course : BCA–503

**( Microprocessors )**

*Full Marks* : 75

*Time* : 3 hours

**( PART : A—OBJECTIVE )**

( *Marks* : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—A

( *Marks* : 15 )

Tick (✓) the correct answer in the brackets provided :                1×10=10

**1.** In an Intel 8085, which is the first machine cycle of an instruction?

*(a)* An op-code fetch cycle       (    )

*(b)* A memory read cycle       (    )

*(c)* A memory write cycle       (    )

*(d)* An I/O read cycle       (    )

**2.** The numbers of output pins in 8085 microprocessors are

*(a)* 27       (    )                *(b)* 40       (    )

*(c)* 21       (    )                *(d)* 19       (    )

**3.** Temporary registers in 8085 are

*(a)* B and C       (    )                *(b)* D and E       (    )

*(c)* H and L       (    )                *(d)* W and Z       (    )

**4.** Which one of the following instructions can be used to clear the accumulator?

*(a)* XRA A      (   )

*(b)* MVI A, OOH      (   )

*(c)* SUB A      (   )

*(d)* All of the above      (   )

**5.** SIM stands for

*(a)* Select Interrupt Mask      (   )

*(b)* Soring Interrupt Mask      (   )

*(c)* Set Interrupt Mask      (   )

*(d)* System Interrupt Mask      (   )

**6.** The address bus of 8085 microprocessor is

*(a)* 4-bit      (   )

*(b)* 16-bit      (   )

*(c)* 8-bit      (   )

*(d)* 32-bit      (   )

**7.** The interrupt that has lowest priority is

*(a)* TRAP      (   )

*(b)* RST 65      (   )

*(c)* RST 7·5      (   )

*(d)* INTR      (   )

**8.** The length of SP (Stack Pointer) of 8085 microprocessor is

*(a)* 8-bit      (   )

*(b)* 16-bit      (   )

*(c)* 12-bit      (   )

*(d)* 32-bit      (   )

**9.** The _____ DAC internally converts the current signal into the voltage signal.

*(a)* voltage output      (   )

*(b)* current output      (   )

*(c)* multiplying type      (   )

*(d)* All of the above      (   )

**10.** The _____ is an 8-bit register that is part of the arithmetic and logical unit (ALU).

(a) stack pointer        (     )

(b) accumulator        (     )

(c) program counter        (     )

(d) general purpose register        (     )

Indicate whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided :        1×5=5

**1.** An interrupt that can be turned off by the programmer is called maskable interrupt.

( T / F )

**2.** The 8085 instruction set includes Seven RST (Restart) instruction.

( T / F )

**3.** D/A converters are available as integrated circuit.

( T / F )

**4.** A time delay can be designed using a register pair.

( T / F )

**5.** TRAP is a maskable interrupt.

( T / F )

SECTION—B

( *Marks* : 10 )

Answer the following questions :        2×5=10

**1.** What are the different logical operations available in 8085?

**2.** Differentiate between maskable and non-maskable interrupt.

**3.** What is DMA?

**4.** Explain data transfer operation.

**5.** Differentiate between encoder and decoder.

## ( PART : B—DESCRIPTIVE )

## ( *Marks* : 50 )

*The figures in the margin indicate full marks for the questions*

**1.** *(a)* Draw and label the functional block diagram of 8085 microprocessor.    10

**OR**

*(b)* Explain the architecture of 8085 microprocessor and its operation with diagram.    7

*(c)* Explain the bus structure of 8085 microprocessor.    3

**2.** *(a)* Explain the 8085 microprocessor programming model with diagram.    6

*(b)* Differentiate between arithmetic operation and logical operation.    4

**OR**

*(c)* Define stack. Explain the operation of stack in detail.    5

*(d)* Explain the different types of addressing modes in 8085.    5

**3.** *(a)* What is time delay? Explain the time delay using a register pair.    5

*(b)* What are tri-state devices? Explain the circuit of tri-state buffer with diagram.    5

**OR**

*(c)* What is encoder? Explain the working of 8-to-3 lines encoder with diagram.    6

*(d)* Differentiate between latched flip-flop and clocked flip-flop.    4

**4.** *(a)* What is vectored interrupt? Explain the four types of vectored interrupt.    5

*(b)* Explain the maskable and non-maskable interrupt.    5

**OR**

*(c)* Explain the working of direct memory access (DMA) with diagram.    6

*(d)* Explain the function of IO/M, READY, HOLD and HLDA.    4

**5.** *(a)* Explain the working of analog-to-digital converter with block diagram.    5

*(b)* Explain successive approximation with diagram.    5

**OR**

*(c)* Explain the working of digital-to-analog converter with block diagram.    5

*(d)* Explain the working of R/2R ladder with diagram.    5

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