BRAINWARE UNIVERSITY

Term End Examination 2018 - 19

Programme – B.Sc. (Honours) in Computer Science

Course Name - Microprocessor and Microcontroller

Course Code – EC501

(Semester – 5)

Time allotted: 3 Hours   **Full Marks: 70**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question)   10 x 1 = 10

1. *Choose the correct alternative from the following*

(i) ADD C will be executed in
   - a. 1 Machine cycle
   - b. 2 Machine cycle
   - c. 3 Machine cycle
   - d. 4 Machine cycle

(ii) By issuing which one of the following signal, CPU releases the system bus to DMA controller?
   - a. HOLD
   - b. HLDA
   - c. ALE
   - d. READY

(iii) Which one of the following is called non-vectored interrupt?
   - a. TRAP
   - b. INTR
   - c. RST 7.5
   - d. RST 0

(iv) Number of software interrupts supported by 8085 microprocessor is

  a. 7   b. 5

  c. 4   d. 8

(v) Which pin is used for demultiplexing of address and data bus of 8085 microprocessor

  a. TRAP   b. ALE

  c. READY   d. IO/$\overline{M}$

(vi) Which pin is used for memory interfacing in 8086 microprocessor?

  a. CLK   b. LOCK

  c. TEST   d. BHE

(vii) The CALL location for TRAP is

  e. 0023_H f. 0032_H

  g. 0042_H h. 0024_H

(viii) How many register banks are present in 8051 microcontroller?

  a. 4   b. 3

  c. 2   d. 1

(ix) In 8086 microprocessor, the size of each segment is

  a. 32 KB   b. 16 KB

  c. 64 KB   d. 8 KB

(x) The Microcontroller 8051 is

  e. 8-bit processor   f. 16-bit processor

  g. 32-bit processor   h. 64-bit processor

Group – B

(Short Answer Type Questions) 3 x 5 = 15

Answer any *three* from the following

2. Explain the internal RAM structure of 8051 microcontroller. [5]

3. Specify the content of the accumulator and CY flag when the following instructions are executed: [5]

        MVI A, DE$_H$
        ADI 13$_H$
        RLC
        RAL

4. Explain the Flags of 8086 microprocessor. [5]

5. Explain the processor status word (PSW) of 8051 microcontroller. [5]

6. With example explain various addressing modes of 8085 microprocessor. [5]

Group – C

(Long Answer Type Questions) 3 x 15 = 45

Answer any *three* from the following

7. (a) Distinguish between microprocessor and microcontroller. [5]

   (b) Explain the meaning of CMP and SUB instruction of 8085 microprocessor. What is the difference between these two instructions? [3+2]

   (c) Write an assembly language program to add two 8-bit numbers in 8085 microprocessor. [5]

8. (a) With Suitable diagram explain the main functions performed by BIU and EU units of microprocessor 8086. [10]

   (b) Draw the pin diagram of 8086 microprocessor. [5]

9. (a) In 8085 microprocessor, calculate the number of T-states required for execution of the instruction IN 10_H? If the clock frequency of the microprocessor is 5 MHz, then compute the time required to execute the above instruction.

[4+4]

(b) With a proper diagram explain the memory write machine cycle of 8085 microprocessor.

[7]

10. (a) What do you mean by cycle stealing DMA? Distinguish between memory mapper IO and peripheral mapped IO. [2+3]

(b) With proper circuit diagram show the memory interfacing of 4KB EPROM (0000H-0FFF) module with 8085 microprocessor. [10]

11. (a) In microprocessor 8085, explain the timing diagram for the instruction OUT 01_H.

[10]

(b) With example, classify the instructions of 8085 microprocessor on the basis of the length of instructions.

[5]