BRAINWARE UNIVERSITY

Course – B.Sc.(CS)

Computer Organisation and Architecture (BCS302)

(Semester – 3)

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 Questions) 10 x 1 = 10

1. *Choose the correct alternative from the following*

(i) The decoded instruction is stored in

a. IR b. IR

c. Registers d. Registers

(ii) The fastest data access is provided using

a. Caches b. DRAMs

c. SRAMs d. Registers

(iii) A hard disk with 20 surfaces will have _____ heads.

a. 10 b. 5

c. 1 d. 20

(iv) The binary address issued to data or instructions are called as

a. Physical address b. Location address

c. Relocatable address d. Logical address

(v) Convert the binary number (1111000011110000) to hexadecimal number

a. 1010 b. 1010

c. 7070 d. 7070

(vi) 8085 microprocessor operates at a frequency of

a. 6 MHz b. 3.2 MHz

c. 5 MHz d. 3 MHz

(vii) The address line required for 16 k byte memory chip are

a. 13 b. 13

c. 15 d. 15

(viii) Which of the following is a user programmable register?

a. Memory Address Register b. Memory Address Register

c. Program Counter d. Program Counter

(ix) RST 7.5 interrupt is

e. Vectored & Maskable f. Vectored & Non-Maskable

g. Direct & Maskable h. Direct & Non-Maskable

(x) 2's Complement of 10101011 is

a. 01010101 b. 01010101

c. 01110101 d. 01110101

Group – B

(Short Answer Type Questions) 3 x 5 = 15

Answer any *three* from the following

2. Explain Dynamic RAM. [5]
3. Describe the Harvard architecture. [5]
4. Differentiate between Fixed Point and Floating Point Number. [5]
5. What do you mean by Cache Mapping? Explain. [5]
6. What are the advantages and disadvantages of Asynchronous BUS? [5]

Group – C

(Long Answer Type Questions) 3 x 15 = 45

Answer any *three* from the following

7. (a) What are the special purpose registers available in Intel 8085A? [5]
   (b) Explain each of these special purpose registers. [10]

8. (a) Describe the general PC BUS architecture. [5]
   (b) Find the value of x for the following equation - $(100)_b = (22)_7$ [5]
   (c) Convert $(BCD)_{16}$ to BCD Code. [5]
9. (a) Write the advantages and disadvantages of Pipeline architecture. [7]
   (b) What is the utility of Stack Pointer and Program Counter? [3]
   (c) Explain Instruction Pipeline. [5]
10. (a) Explain Input/Output Interrupt Code Registers (IOIC). [3]
   (b) Multiply – 5 and 2 using Booth's Multiplication Algorithm. [8]
   (c) What is MDRAM and PSRAM? Explain in brief. [4]
11. (a) What do you mean by Single and Double Precision Format? [2]
   (b) Compare the storage layout of Single and Double Precision Floating Point Numbers. [5]
   (c) State the conditions for having NaN. [3]
   (d) Explain Flag Register with respect to Intel 8085A. [5]