OR

(b) (i) What do you mean by inter-register transfer ? Discuss Bus transfer.

10 Marks (CO1)

(ii) Draw a diagram of bus system for four register of 4 bits each. The bus is to be constructed with multiplexers.

5. (a) (i) Write an assembly language program to add two 16 bit numbers from memory using any *one* of the method.

(ii) Mention the advantages and disadvantages of micro-programmed control and hardwired control.

10 Marks (CO2)

OR

(b) (i) What are modes of transfer ? Explain different types of transfer modes.

(ii) Write a program to evaluate the arithmetic expression using three, two, one and zero address instructions format :

$X = (A * B + C) / (D * E + F / G + H)$

10 Marks (CO2)

H Roll No. .....

TBC–303

B. C. A. (THIRD SEMESTER)

MID SEMESTER EXAMINATION, 2021

COMPUTER ORGANIZATION AND ARCHITECTURE

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) What is Instruction Cycle ? Briefly explain with the help of state diagram.

10 Marks (CO1)

OR

(b) (i) What is Register Transfer Language (RTL) ? Explain with suitable examples.

(ii) What are Shift Micro-Operations ? Starting from initial value of R = 11011011, determine the sequence of binary values in R after a logical shift left, followed by a circular shift right, followed by an arithmetic shift right and circular shift right. 10 Marks (CO1)

2. (a) Explain the rules of assembly language. Write an assembly language program to add two numbers. 10 Marks (CO2)

OR

(b) (i) Draw the flow chart of address sequencing in Micro-programmed CU.

(ii) What is the difference between the hardwired CU and the Micro-programmed CU ?

10 Marks (CO2)

3. (a) Define logical micro-operations. Design and explain with the help of function table.

10 Marks (CO1)

OR

(b) What are the data transfer and data manipulation instructions ? Explain data manipulation instructions in brief.

10 Marks (CO1)

4. (a) (i) With the help of a suitable diagram, explain various CPU registers with their working.

(ii) The 8 bit registers A, B, C and D initially have the following values :

A = 10110010

B = 10101011

C = 10111001

D = 11101011

Determine the 8 bit values in each register after the execution of the following sequence of micro-operations :

$A \leftarrow B - A$

$A \leftarrow A + C$

$B \leftarrow B \wedge D$

$D \leftarrow D - 1$

10 Marks (CO1)

P. T. O.