C

(Printed Pages 4)

Roll No. _____

25/1187

B.C.A. (Third Semester)

Examination, 2025

Third Paper

(Computer Architecture & Assembly Language)

Time : Two Hours]   *[Maximum Marks : 75*

Note : Attempt **all** sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt all the **five (05)** questions. Each question carries two (02) marks and the answer of each question should not exceed 50 words.   5×2=10

1. (a) Differentiate between General purpose and special purpose registers in a microprocessor.

   (b) What is the function of the Cache memory?   2

P.T.O.

   (c) How is the Stack organized in microprocessor memory?   2

   (d) Define RISC and give an example of the same.   2

   (e) What is DMA? Where is the DMA scheme used?   2

Section-B

(Short Answer Type Questions)

Note : Attempt any **five (05)** questions out of total 08 (eight) questions. Each question carries 05 (five) marks and the answer of each question should not exceed 100 words.   5×5=25

2. (a) What are the different classes of instructions in the Assembly language of a microprocessor? List with an example of each class.   5

   (b) What do you mean by a Vector Processor? Explain briefly the architecture of such a machine.   5

   (c) Discuss Booth's Algorithm with an example.   5

2

(d) Define 'Interrupt'. How are interrupts handled in the 8085 microprocesor? 5

(e) Discuss briefly the organization of the control unit in a microprocessor. 5

(f) What is the difference between a fixed point and a floating point number? Illustrate the basic arithmetic operations for floating point numbers through examples. 5

(g) Illustrate with examples: 5
   (i) Shift Instruction
   (ii) Rotate Instruction
   (iii) PUSH and POP
   (iv) Flag Register and its role

(h) What is a macro? How may it be used in the Assembly language programming? 5

Section-C

(Long Answer Type Questions)

Note : Attempt any 02 (**two**) questions out of total 04 (**four**) questions. Each question carries 20 (**twenty**) marks and answer of each question should not exceed **400** words. 2×20=40

3. (a) Define with examples : 6+8+6
   (i) Indirect Addressing mode
   (ii) m-address machine
   (iii) Register Transfer Instructions
   (iv) Memory address Register and Data Register
   (v) Program Counter

(b) Illustrate with diagram and explain the following : 10+10
   (i) Bus structure in 8085
   (ii) Memory Interfacing in 8085

(c) How is Input/Output Interfacing carried out in a microprocessor? Discuss the different Asynchronous modes of data transfer with its advantages and limitations. 20

(d) Write the following programs in Assembly language : 10+10
   (i) Computing the factorial of an integer N.
   (ii) Finding the sum of the series of Natural Numbers upto N terms : 1+2+3+4+5 +..... + N.