

Roll No

23/3102**B.C.A. (Third Semester)****Examination, 2023****Third Paper****(Computer Architecture & Assembly Language)****Time : 3:00 Hours]****[Maximum Marks : 75**

Note : Attempt any **five** questions. **All** questions carry equal marks. The answers to short answer type questions should not exceed 200 words and the answer to long answer type questions should not exceed 500 words.

1. Explain with diagram: $7\frac{1}{2} \times 2 = 15$
- (i) Bus structure in a microprocessor.
 - (ii) Register types and their usage in a typical microprocessor.

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2. Write a short note on any **two**: $7\frac{1}{2} \times 2 = 15$
- (i) Interrupts and Interrupt processing.
 - (ii) Memory Interfacing
 - (iii) Cache Memory
3. Differentiate between the following with the help of examples. $5+5+5=15$
- (i) Arithmetic and logic instructions
 - (ii) Shift and Rotate instructions
 - (iii) RISC and CISC processing
4. How is integer multiplication carried out in a microprocessor? Write Booth's algorithm and explain it with examples. 15
5. Explain how floating point numbers are represented in computer memory. Give examples of how floating point arithmetic operations are carried out and which types of errors may be generated. 15

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6. Explain with diagram: $7\frac{1}{2} \times 2 = 15$

- (i) Asynchronous Data Transfer
- (ii) DMA scheme and DMA controller

7. Explain the 8085 microprocessor from the perspective of : $5+5+5=15$

- (i) Chip diagram
- (ii) Hardware/Architecture and organization
- (iii) Programming / logical model

8. Write a program in assembly language to generate the fibonacci series of numbers upto N terms. Also, trace the working with input and outputs generated. 15

9. Write a short note on: $7\frac{1}{2} \times 2 = 15$

- (i) Macros
- (ii) Input-Output Programming