

GYANMANJARI INNOVATIVE UNIVERSITY

Gyanmanjari Institute of Technology

B.Tech.- End Semester Examination (ESE)- Summer - 2026

Enrollment No.: _____

Date: 21/05/2026

Subject Code: BETCE16328

Semester: 6

Subject Name: Computer Organization and Architecture

Total Marks: 100

Time: 10:30AM To 01:30PM

Instructions:

1. Question No. 1 is Compulsory.
2. Make Suitable Assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
Q.1 (a) Write and explain Assembly program for addition of two numbers.	05
(b) Write and explain an assembly program for subtraction of two numbers.	05
(c) Explain Register Transfer, Bus Transfer and Memory Transfer with diagram.	10
Q.2 (a) what is computer instruction? What is use of it? Types of computer instruction.	05
(b) List out names of eight main registers of basic computer with their symbolic name and purpose.	05
OR	
(b) Explain Arithmetic pipeline in detail.	05
(c) Explain memory reference instruction in details.	10
OR	
(c) Explain I/O programming techniques in assembly.	10
Q.3 (a) Describe the concept of Shared Memory Multiprocessors.	05
(b) Explain the need for synchronization in multiprocessor systems.	05
(c) Explain the characteristics of multiprocessor systems in detail.	10
OR	
(a) Describe Basic Computer Organization with block diagram.	05
(b) Interpret the following instructions: INP, ISZ, CMA, CLE and LDA	05
(c) Explain Stack Organization in memory and register.	10
Q.4 (a) Show condition where pipeline gives worse performance than non-pipeline.	05
(b) Illustrate the CPU-IOP communication process in a computer system.	05

- (c) Explain the working of Asynchronous Data Transfer using handshaking method with a diagram. 10

OR

- (a) Explain the working of Inter-processor Arbitration in multiprocessor systems. 05
- (b) Explain Looping instructions. 05
- (c) Write an ALP for the following pseudo-code: $Sum = sum + A + B$, $Dif = Dif - C$, $Sum = Sum + Dif$ 10
- Q.5 (a) Compare Main Memory and Auxiliary Memory with suitable examples. 05
- (b) Compare single processor systems and multiprocessor systems. 05
- (c) Compare Binary Addition and Binary Subtraction operations in computer arithmetic. 10

OR

- (a) Evaluate the importance of Virtual Memory in modern computer systems. 05
- (b) Evaluate the advantages of multiprocessor systems in modern computing. 05
- (c) Compare Cache Memory and Associative Memory with advantages and disadvantages. 10