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**GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN**

(Autonomous)

(Affiliated to Andhra University, Visakhapatnam)

II B.Tech. - II Semester Regular Examinations, April – 2026**COMPUTER ORGANIZATION**

[CSE (AI&ML)]

1. All questions carry equal marks
2. Must answer all parts of the question at one place

Time: 3Hrs.**Max Marks: 70****UNIT-I**

1. a. Explain Arithmetic Micro-operations used in computer systems. [7M]
- b. Describe the different symbols and rules used in RTL with suitable examples.. [7M]

OR

2. a. Illustrate different logic micro-operations such as AND, OR, XOR, and NOT with examples and their applications. [7M]
- b. Describe Register Transfer in digital systems in detail. [7M]

UNIT-II

3. a. Explain the different registers used in a Basic Computer with their functions. [7M]
- b. Compare Hardwired Control Unit and Microprogrammed Control Unit. [7M]

OR

4. a. Explain the instruction cycle of a basic computer with a neat flowchart. [7M]
- b. Explain the Address Sequencing mechanism in a microprogrammed control unit. [7M]

UNIT-III

5. a. Describe the concept of Reduced Instruction Set Computer with diagram (RISC). [7M]
- b. Discuss stack operations (PUSH and POP) and the role of the stack pointer. [7M]

OR

6. a. Evaluate the following arithmetic statement using zero, one, two and three address instructions. Demonstrate the usage of conventional symbols and instructions.

$$X = (A+B) * (C+D).$$
[7M]
- b. Write short notes on instructions such as branch, jump, call, return, and conditional instructions. [7M]

UNIT-IV

7. a. Describe how arithmetic operations are performed using pipelining. [7M]
- b. Compare synchronous and asynchronous data transfer with advantages and disadvantages [7M]

OR

8. a. Explain the concept of parallel processing in computer systems. [7M]
- b. Describe Direct Memory Access controller with a block diagram and working principle [7M]

UNIT-V

9. a. Describe addition and subtraction operations with signed-magnitude data. [7M]
- b. Compare Associative and Direct mapping techniques with and example. [7M]

OR

10. a. Discuss the design principles of Memory Hierarchy. How do speed, cost, and capacity influence Memory organization? [7M]
- b. Explain different arithmetic operations performed in computers. [7M]