

Code No.: CS58111PE

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**CMR ENGINEERING COLLEGE: : HYDERABAD  
UGC AUTONOMOUS**

**I-M.TECH-I-Semester End Examinations (Regular) - March- 2023  
HIGH PERFORMANCE COMPUTING (PE-I)  
(CSE)**

[Time: 3 Hours]

[Max. Marks: 60]

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

**(10 Marks)**

1. a) What are data requirements in the early Grid solutions? [1M]
- b) Define Semantic Grids. [1M]
- c) Mention any two principles of Message-Passing Programming. [1M]
- d) What is the main use of Asynchronous Paradigm? [1M]
- e) What is the use of Symmetric Multiprocessors? [1M]
- f) What are the components of Computing era? [1M]
- g) What is the use of Latency bandwidth in performance evaluation? [1M]
- h) Define Synchronous Parallelism. [1M]
- i) Define Pervasive Computing. [1M]
- j) What are various Device Management Challenges in HPC? [1M]

**PART-B**

**(50 Marks)**

2. Explain in detail about Computational and Data Grids. [10M]

**OR**

3. Discuss in detail Service-Oriented Architecture and Grid in Grid Computing roadmap. [10M]
4. Determine how send and receive Operations are performed in Message-Passing programming? [10M]

**OR**

5. How can you make use of Read-Write Locks and Barriers in Composite Synchronization Constructs? [10M]
6. Explain various modules in Scalable Parallel Computer Architectures and compare their characteristics. [10M]

**OR**

7. Discuss the different services of Resource Management and Scheduling (RMS). [10M]
8. What are the typical techniques to optimize Cluster-wide communications? [10M]

**OR**

9. Explain the COMPaS Cluster operating system. [10M]
10. Describe the various hardware devices used in Pervasive Computing. [10M]

**OR**

11. Identify and summarize Cryptographic Algorithms used for security. [10M]

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