

CMR ENGINEERING COLLEGE : HYDERABAD
UGC AUTONOMOUS
I-M.TECH-I-Semester End Examinations (Regular) - March- 2025
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) Define Grid Computing. [1M]
- b) Identify key components of Grid Architecture and their functions. [1M]
- c) Define the Message-Passing Interface. [1M]
- d) What is the role of Shared-Address Space Platforms? [1M]
- e) What are scalable Parallel Computer Architectures? [1M]
- f) How do Cluster Middleware and Single System Image (SSI) contribute to cluster efficiency? [1M]
- g) Define lightweight messaging in Cluster Systems. [1M]
- h) What are the main components of job and resource management systems? [1M]
- i) Define Pervasive Computing. [1M]
- j) Explain the role of biometrics in Pervasive Computing. [1M]

PART-B**(50 Marks)**

2. Explain in detail the working of a Grid Computing Environment. [10M]
- OR**
3. Discuss the concept of Virtual Organizations in Grid Computing with examples. [10M]
4. Demonstrate the working of Shared Memory and Distributed Memory models. [10M]
- OR**
5. Develop and explain a case study of a real-world application using Parallel Computing. [10M]
6. Write five differences between Traditional Supercomputers and Cluster Computers. [10M]
- OR**
7. Design and explain a scheduling strategy for a large-scale Cluster System. [10M]
8. Explain various job Scheduling Techniques used in Cluster Operating System. [10M]
- OR**
9. Explain different types of lightweight messaging systems. [10M]
10. Analyze the advantages and limitations of biometrics in Pervasive Systems. [10M]
- OR**
11. Describe the different operating systems used in Pervasive Computing Devices. [10M]
