

**Code No: 155AB****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, January/February - 2023****ADVANCED OPERATING SYSTEMS****(Common to CSE, IT)****Time: 3 Hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.  
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.  
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) What is a distributed operating system? [2]
- b) List the advantages and disadvantages of distributed operating systems. [3]
- c) What is meant by data migration? [2]
- d) Write a short note on distributed mutual exclusion. [3]
- e) What is distributed deadlock? [2]
- f) Discuss the various issues of deadlock detection in the distributed systems. [3]
- g) What is multiprocessor? [2]
- h) What is the difference between process and thread? [3]
- i) List the advantages of using distributed shared memory. [2]
- j) Write the key issues in task migration. [3]

**PART – B****(50 Marks)**

- 2.a) With a neat sketch, explain workstation-server model.
  - b) Differentiate between blocking and non-blocking primitives. [6+4]
- OR**
- 3.a) Describe the issues in distributed operating systems.
  - b) Write short notes on RPC. [5+5]
4. Write the Ricart-Agrawala algorithm and illustrate with an example. [10]
- OR**
5. Write Raymond's Heuristic algorithm and illustrate with an example. [10]
  6. Classify the various hierarchical deadlock detection algorithms and briefly explain them. [10]
- OR**
7. Classify the various centralized deadlock detection algorithms and briefly explain them. [10]

- 8.a) Mention and brief the various design issues of distributed file systems. [5+5]  
b) Draw and briefly explain architecture for distributed file systems. [5+5]
- OR**
- 9.a) Describe the structure of multiprocessor operating system. [5+5]  
b) Give a brief summary on process synchronization. [5+5]
10. Explain the following terms:  
a) Architecture of a distributed shared memory [5+5]  
b) Requirements for load distributing. [5+5]
- OR**
- 11.a) Discuss the design issues of distributed shared memory. [5+5]  
b) Write migration algorithm for implementing distributed shared memory. [5+5]

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