

**TILAK MAHARASHTRA VIDYAPEETH, PUNE**  
**MASTER OF SCIENCE (M.Sc) in COMPUTER APPLICATIONS**  
**EXAMINATION : JANUARY- 2023**  
**SEMESTER - I**  
**Sub.: Advanced Operating System (MSC-103-22)**

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**Date : 05/01/2023**

**Total Marks : 60**

**Time: 10.00 am to 12.30 pm**

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***Instruction:***

1. *All questions are compulsory unless and otherwise stated.*
  2. *Bold figures to the right of every question are the maximum marks for that question.*
  3. *Candidates are advised to attempt questions in order.*
  4. *Answers written illegibly are likely to be marked zero.*
  5. *Use of scientific calculators, Log tables, Mollier Charts is allowed.*
  6. *Draw neat and labelled diagram wherever necessary.*
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**Q.1. Answer the following in 2-3 lines. (Any 5) (10)**

1. Define logical and global clock state.
2. Define deadlock.
3. What is the kernel of OS.
4. Define all memory partitioning techniques.
5. What is internal fragmentation?
6. Define swapping.
7. How to avoid race condition?

**Q.2. Answer the following in short. (Any 4) (20)**

1. Explain difference between physical & logical memory
2. Explain critical section problem.
3. Difference between paging & segmentation.
4. Explain all file attributes.
5. Explain all scheduling algorithm
6. Explain role of operating system as a resource manager.

**Q.3. Answer the following in detail. (Any 3) (30)**

1. Explain all classical epic problems in synchronization with diagram
2. Explain the content of PCB & also explain the significance of PCB.
3. Describe demand paging along with benefits and limitations
4. Explain virtual memory management policies
5. Describe file management? Also describe following points: file attribute, file naming, file type, file structure.

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