

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc (SS) DEGREE EXAMINATION MAY 2024  
(Third Semester)

Branch – SOFTWARE SYSTEMS (five year integrated)

OPERATING SYSTEM

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. A process can be \_\_\_\_\_.  
(i) single-threaded (ii) multithreaded  
(iii) both single-threaded and multithreaded (iv) none of the mentioned
2. A problem encountered in multitasking when a process is perpetually denied necessary resources is called \_\_\_\_\_.  
(i) Deadlock (ii) Starvation (iii) Inversion (iv) aging
3. Because of virtual memory, the memory can be shared among \_\_\_\_\_.  
(i) Processes (ii) threads (iii) instructions (iv) none of the mentioned
4. \_\_\_\_\_ partitions data and parity among all N+1 disks, instead of storing data in N-disks and parity in one disk.  
(i) Block interleaved parity (ii) Block interleaved distributed parity  
(iii) Bit parity (iv) Bit interleaved parity
5. What is the benefit of virtualization?  
(i) Faster provisioning of applications and resources.  
(ii) Reduced capital and operating costs  
(iii) Increased IT productivity, efficiency, agility and responsiveness.  
(iv) All of Above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. Enumerate Different types of System calls.  
(OR)  
b. Analyze various process states.
- 7 a. List the advantages and disadvantages of using SJF and Priority Scheduling Algorithm.  
(OR)  
b. Enumerate general approaches to handle critical sections and list the advantages of critical section in process synchronization.
- 8 a. Compare segmentation and paging.  
(OR)  
b. Explain the need for virtual memory.
- 9 a. What are the common goals of I/O scheduling?  
(OR)  
b. Mention the advantages and disadvantages of Contiguous File allocation.
- 10 a. List the major operations of Operating System Based Virtualization and its features.  
(OR)  
b. Explain in detail about memory virtualization.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a. What is the Structure of operating systems?  
(OR)  
b. List the various types of threads.
- 12 a. Discuss race conditions and mention the different types of race conditions.  
(OR)  
b. List the necessary conditions for deadlock occurrence and methods of handling deadlock.
- 13 a. Compare between fixed memory partition and dynamic memory partition.  
(OR)  
b. Analyse Page Fault Handling and Demand Paging in the Operating System.
- 14 a. Discuss various RIAD technologies with appropriate diagrams.  
(OR)  
b. List various Directory Structures in the Operating System and mentions its advantages and disadvantages.
- 15 a. What's the difference between Type 1 and Type 2 Hypervisors?  
(OR)  
b. Evaluate on a virtual machine running in multiple operating systems.

Z-Z-Z

END