

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024  
(Third Semester)

Branch – COMPUTER TECHNOLOGY

OPERATING SYSTEMS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 A program is \_\_\_\_\_ entity and a process is \_\_\_\_\_ entity.  
(i) Passive, Active (ii) Active, Passive  
(iii) Runtime, Compile Time (iv) Physical, Logical
- 2 What is the objective of Multi-programming?  
(i) Maximize Memory utilization (ii) Maximize I/O utilization  
(iii) Maximize CPU utilization (iv) All of these
- 3 The situation of requested resources are held by other waiting threads is  
(i) Race condition (ii) Deadlock  
(iii) Mutual wait (iv) Infinite condition
- 4 An operation moves a page from memory to the backing store is \_\_\_\_\_; the reverse process is \_\_\_\_\_.  
(i) page in, page out (ii) page out, page in  
(iii) Code out, Code in (iv) Code in, Code out
- 5 The simple but efficient method of disk-space allocation was used by the MS-DOS operating system is  
(i) FAT(File Allocation Table) (ii) BMT (Boot Map Table)  
(iii) PMT(Page Map Table) (iv) Master Table

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a) What are the responsibilities of Operating System in Process management.  
OR  
b) List out the various states of a Process.
- 7 a) Distinguish Data and Task Parallelism.  
OR  
b) Narrate four circumstances of making decisions for CPU Scheduling.
- 8 a) Examine that how semaphores are more robust than Mutex locks.  
OR  
b) What are the four conditions that Deadlock can arise?
- 9 a) What are the 3 strategies to Dynamic Storage Allocation problem.  
OR  
b) Describe FCFS page replacement algorithm.
- 10 a) Summarize the attributes of typical File System.  
OR  
b) How the Linear List is used in Directory Implementation.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 a) Point out major categories of System Calls in Operating System.  
OR  
b) Examine Scheduling Queues in Process Scheduling.
- 12 a) Demonstrate the types of Multi-threading models  
OR  
b) Highlight the core of CPU Scheduling Algorithms.
- 13 a) Enumerate the implementation of Semaphores in detail.  
OR  
b) Describe Process and Thread termination in Deadlock Recovery.
- 14 a) Enumerate the Swapping techniques with Standard, Paging and Mobile systems.  
OR  
b) Analyze how to compute effective access time in Demand Paging.
- 15 a) Tabulate some common types of Files with example.  
OR  
b) Summarize various types of Allocation methods of File System.

Z-Z-Z

END