**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2025**
(Third Semester)

Branch – **COMPUTER TECHNOLOGY**

# OPERATING SYSTEMS

Time: Three Hours Maximum: 75 Marks

## SECTION-A (10 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks (10 × 1 = 10)

| Question No. | Question | K Level | CO |
|---|---|---|---|
| 1 | Recall that a program loaded into memory and executing is called as --------<br>a) Process b). Thread c.) Instruction d.) Program | K1 | CO1 |
| 2 | Show that which mechanism allow co-operating processes to exchange data and information<br>a) PCB b) IPC c) PID d) RPC | K2 | CO2 |
| 3 | Recall that in multithreading models, there exist a relationship between user threads and ---------- threads<br>a) System b) Kernal c) Green d) program | K1 | CO1 |
| 4 | Show the Scheduling algorithm that allows a process to move between queues<br>a) Multilevel Queue b ) Priority<br>c) Multilevel feedback queue d) FCFS | K2 | CO2 |
| 5 | Recall the term that refers if process pi is executing in its critical section, then no other processes can be executing in critical sections<br>a) Bounded waiting b) progress<br>c) synchronization d) Mutual exclusion | K1 | CO1 |
| 6 | Relate the following that represent deadlock ---------- using Banker's algorithm<br>a) Avoidance b) Resource-allocation graph<br>c) product-allocation graph d) Deallocation graph | K2 | CO2 |
| 7 | Recall that swapping involves moving processes between ------ and backing store<br>a) Main memory b) Cache memory<br>c) Secondary memory d) Micro memory | K1 | CO1 |
| 8 | Show that technique in which pages are loaded only when they are demanded during program execution<br>a) swapping b) virtual memory<br>c) Demand paging d) replacement | K2 | CO2 |
| 9 | Which of the following is a simplest file access method<br>a) Direct b) Sequential c) indexed sequential d) relative | K1 | CO1 |
| 10 | Interpret the the allocation method in which each file is a linked list of disk blocks<br>a) Contiguous b) Indexed<br>c) Linked d) non-Contiguous | K2 | CO2 |

**Cont...**

## SECTION - B (35 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

| Question No. | Question | K Level | CO |
|---|---|---|---|
| 11.a. | Explain about operating system operations. | K2 | CO1 |
| | (OR) | | |
| 11.b. | Outline the basic concepts of process scheduling. | | |
| 12.a. | Make use of multithreading programming and state its benefits. | K3 | CO3 |
| | (OR) | | |
| 12.b. | Apply basic concepts of cpu scheduling. | | |
| 13.a. | Apply semaphore for critical-section problem. | K3 | CO3 |
| | (OR) | | |
| 13.b. | Identify the ways of recovery from deadlock. | | |
| 14.a. | Examine the working of Demand paging. | K4 | CO4 |
| | (OR) | | |
| 14.b. | Compare the internal and external fragmentation. | | |
| 15.a. | Analyze various attributes involved in files. | K4 | CO4 |
| | (OR) | | |
| 15.b. | Explain storage device management. | | |

## SECTION -C (30 Marks)

Answer **ANY THREE** questions

**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

| Question No. | Question | K Level | CO |
|---|---|---|---|
| 16 | Classify different services provided by operating system. | K4 | CO2 |
| 17 | Inspect the working of FCFS and shortest-job-first scheduling algorithms. | K4 | CO3 |
| 18 | Analyze the ways to detect Deadlock. | K4 | CO4 |
| 19 | Examine the working of Optimal and LRU page replacement in detail. | K4 | CO5 |
| 20 | Discover different ways of performing free space management. | K4 | CO5 |

Z-Z-Z END