II Semester B.C.A./B.C.A.(DS) Degree Examination, June/July - 2025
(SEP Scheme Freshers)
COMPUTER APPLICATION
Operating System Concepts

Time : 3 Hours   **Maximum Marks : 80**

Instructions :

Answer all the Sections.

SECTION - A

I.   Answer **any Ten** questions. Each question carries **2** marks.   **(10×2=20)**

1.   Write any four examples of operating system.

2.   Define thread.

3.   What is CPU scheduling?

4.   What is race condition in multiprocessing system?

5.   What are monitors?

6.   What is deadlock detection?

7.   What is segmentation?

8.   Define logical and physical address space.

9.   Define virtual memory.

10. What is directory structure?

11. What is file system implementation?

12. Define swap space.

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SECTION - B

II.   Answer any **Six** questions. Each question carries **5** marks.   **(6×5=30)**

13.   Differentiate between multiprogramming and multitasking.

14.   Explain the different approaches to inter process communication.

15.   State Reader Writers problem. Explain the solution to the Readers Writers problem.

16.   Write a note on the following:
      a)   Binary semaphore
      b)   Counting semaphore.   **(3+2)**

17.   Discuss in detail contiguous memory allocation.

18.   What is page fault? Explain the steps to handle page fault.

19.   Explain indexed sequential access method.

20.   Explain layered file system.

SECTION - C

III. Answer any **Three** questions. Each question carries **10** marks.   **(3×10=30)**

21.   Consider the following set of process with length of CPU burst time in milliseconds arrived with different arrival time as indicated below.

Process	Arrival Time	CPU Burst-Time
P1	0	6
P2	5	10
P3	7	13
P4	11	2
P5	13	6

      a)   Draw Gantt's charts illustrating the execution of these processes using FCFS and SJF algorithm.

      b)   Calculate turn-around time and waiting time.

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22. a) Explain the necessary condition for deadlocks.

b) Explain the methods of handling deadlock. **(5+5)**

23. a) What is paging? How paging works?

b) Write a note on swapping. **(6+4)**

24. Consider a disk queue with I/O request for tracks :
98, 183, 37, 122, 14, 124,65, 67 head starts at position 53. Find the Total Head Movement (THM) using LOOK and C-LOOK disk scheduling algorithm.

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