



IV Semester B.C.A. Degree Examination, Sept./Oct. 2023

(NEP – Freshers)

COMPUTER APPLICATION
Operating System Concepts

Process	CPU Burst
P1	10
P2	1
P3	2
	3

Max. Marks : 60

Time : 2½ Hours

Instruction : Answer *all* the Sections.

SECTION – A

I. Answer **any six** questions. **Each** question carries **two** marks. (6×2=12)

- 1) What is an operating system ?
- 2) What is inter-process communication ?
- 3) What is a thread ?
- 4) What is pre-emptive scheduling ?
- 5) What is race condition ?
- 6) What is semaphore ? Mention its types.
- 7) Define logical and physical address.
- 8) What is dynamic loading ?
- 9) List the various file attributes.



SECTION – B

II. Answer **any four** questions. **Each** question carries **six** marks : (4×6=24)

- 10) Explain functions of an operating system.
- 11) Explain the different types of threads.



- 12) Consider the following processes with their CPU burst time in milliseconds and arrival time=0.

Process	CPU Burst
P1	10
P2	1
P3	2
P4	5

Draw the Gantt chart illustrating the execution of these processes using FCFS.

Calculate :

- Average waiting time
 - Average turnaround time
- 13) Explain methods for handling deadlocks.
- 14) Write a note on segmentation.
- 15) Explain any two directory structures.



SECTION – C

III. Answer **any three** questions. **Each** question carries **eight** marks : **(3×8=24)**

- Explain time sharing and real time operating system. **4**
 - Write a note on operating system calls. **4**
- Write a note on schedulers ? **4**
 - Explain Round Robin scheduling with example. **4**
- Write a note on threading issues. **4**
 - Write a note on scheduling criteria. **4**
- What is fragmentation ? Explain the types of fragmentation. **4**
 - Explain dining philosopher problem using semaphore. **4**
- Explain FIFO page replacement algorithm with example. **4**
 - What is file accessing method ? Explain sequential file access methods. **4**