Second Semester BCA Degree Examinations

May /June 2026

(SEP Scheme)

SBB0230 : Operating System

Time: 3 hrs.] *[Max.Marks:80*

Instruction to the Candidates :

1. *The student should legibly write Section number along with question numbers within the margin only.*
2. *The answers without Section number and question numbers will not be valued.*
3. *Do not write anything (except register number) on the question paper.*

SECTION – A

I. Answer all the questions. **(2X10=20)**

1.

a) Define Operating System. List any 2 disadvantage of Batch Systems.

b) Explain different process states with diagram.

c) What is preemptive scheduling? Mention the difference between Long term scheduler and short term scheduler.

d) Discuss the CPU scheduling criterias.

e) What are the necessary conditions for deadlock? Briefly explain.

f) Write a diagram for Internal and External fragmentation

g) Define Thrashing.

h) What are the various file operation ?

i) Write a note on Free Space Management.

j) Mention any two differences between FCFS and SSTF disk scheduling algorithm.

SECTION – B

II. Answer any SIX of the following questions. **(5X6=30)**

2. Explain multiprogramming operating system and distributed system.

3. What is PCB ? Explain with a diagram.

4. Solve the following using FCFS CPU scheduling algorithm. Calculate average waiting time and average turn around time.

Contd...2

Process	Arrival Time	Burst Time
P1	0	24
P2	0	3
P3	0	3

5. How deadlock will be prevented ? Explain.
6. Briefly explain Swapping and contiguous memory allocation with the help of diagram.
7. Explain optimal page replacement algorithm, by taking following reference string (7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1) and the number of frames is 4.
8. What are the different methods to access a file ? Explain any two methods.
9. What is disk scheduling ? Explain FCFS disk scheduling algorithm.

SECTION – C

III. Answer any THREE of the following questions. (3X10=30)

10. a) Explain Real Time systems.

    b) Write a note on context switching. (5+5)

11. a) Consider the following set of 3 process.

PId	Burst time	Arrival Time
P_1	4ms	0ms
P_2	5ms	0ms
P_3	3 ms	0ms

    If the cpu scheduling process is Round Rob in scheduling with time quantum of t = 2 ms. Calculate the Average waiting time and average turnaround time.

    b) Explain Resource Allocation Graph with an example. (5+5)

12. a) Differentiate between logical address space and physical address space.

    b) Explain segmented memory management technique, with an example. (5+5)

13. a) Explain directory structure in file system.

    b) How SSTF disk scheduling algorithm works ? Explain for the request sequence – 82, 170, 43, 140, 24, 16, 190 the head position is at 50. (5+5)

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