

55345



V SEMESTER B.Sc. EXAMINATION-MARCH/APRIL 2022

SCHEME: SEMESTER- CBCS

COMPUTER SCIENCE

System Software and Operating Systems

Time: 03 Hours

Max Marks: 80

Instruction: Answer Part-A and Part-B

PART - A

Answer any TEN questions.

2x10=20

1. Define Assembler.
2. What are the functions of loader?
3. Mention any two advantages of using Macros.
4. What is code optimization?
5. List the services provided by Operating System.
6. What is thread?
7. What is demand paging?
8. What is Real time operating system?
9. Differentiate job scheduler and CPU scheduler.
10. What is context switch?
11. Mention any two disadvantages of FCFS scheduling.
12. Define deadlocks.

PART - B

Answer any TWO questions from each main.

3x20=60

13. a) i) Explain SIC Machine Architecture. 05  
ii) Describe the data structures of pass1 assembler. 05
- b) Write a note on:
  - i) Compiler-and-go loader scheme. 05
  - ii) Direct linking loader. 05
- c) With a neat diagram explain the various phases of Compiler. 10
14. a) i) Mention merits and demerits of Time Sharing operating system. 04  
ii) Briefly Explain different types of system calls. 06
- b) i) Explain process state transition. 05  
ii) Explain contiguous memory allocation. 05

PTO



- c) i) Write a note on segmentation. 04  
 ii) With an example, explain FIFO Page Replacement Algorithm. 06
15. a) i) Write a brief note on CPU I/O Burst cycle. 05  
 ii) Discuss various CPU scheduling criteria. 05
- b) i) Differentiate preemptive and non-preemptive scheduling. 04  
 ii) Consider the following set of processes with the length of the CPU burst time given in milliseconds: 06

Process	Burst time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

Note: Smaller priority number implies a higher priority.

Draw the Gantt Chart, calculate Average waiting time, Average turn around time for Priority Scheduling.

- c) i) Describe necessary conditions for a deadlock to occur. 05  
 ii) Explain deadlock recovery techniques. 05

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