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**BSCCSC 252**

**Credit Based Fourth Semester B.Sc. Degree Examination, September 2022  
(2019-20 and Earlier Batches)  
COMPUTER SCIENCE  
Operating System and Linux**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer **any ten** questions from Part – **A** and **one full** question from **each** Unit of Part – **B**.

**PART – A**

1. a) What is PCB ? (2×10=20)  
b) What is a Thread ? Give their types.  
c) What is deadlock ? Give real life example for deadlock.  
d) What is race condition ?  
e) What is priority scheduling ?  
f) List any four criteria for comparing cpu scheduling algorithms.  
g) Define fragmentation.  
h) Differentiate between logical and physical address space.  
i) Define virtual memory. Mention two ways of its implementation.  
j) What are the uses of mv and cp commands ?  
k) List the string operators and their meaning in Linux.  
l) Define a kernel.

**PART – B**

**Unit – I**

2. a) Explain different types of real time systems.  
b) Write a note on process management.  
c) Explain operating system services. (5+5+5)

P.T.O.



- 3. a) Explain system structure with their types.
- b) Explain process scheduling with the help of queuing diagram.
- c) Explain different multi-threading models. **(5+5+5)**

**Unit – II**

- 4. a) Explain the multilevel queue scheduling.
  - b) Explain the methods for handling deadlocks.
  - c) Explain banker’s safety algorithm. **(5+5+5)**
5. a) Consider the following set of processes with the length of the CPU burst time given in milliseconds.

<b>Process</b>	<b>Burst time</b>
P1	15
P2	4
P3	10
P4	8
P5	5

Draw the Gantt chart using Round Robin with time quantum of 5 milliseconds and find the average waiting time.

- b) What are the necessary conditions for deadlock situation to occur ?
- c) What is resource allocation graph ? Give an example. **(5+5+5)**

**Unit – III**

- 6. a) Explain paging memory management with example.
- b) What is fragmentation ? Explain internal and external fragmentation with example.
- c) Explain the following :
  - i) Page replacement scheme
  - ii) Demand Paging. **(5+5+5)**



- 7. a) Explain the LRU page replacement algorithm with an example.
- b) Explain various file access methods in detail.
- c) Given the following page reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 with 3 frames of memory. Write the steps of FIFO algorithm which shows the occurrence of page fault. **(5+5+5)**

**Unit – IV**

- 8. a) Write a note on positional parameters.
  - b) Explain following commands :
    - i) mkdir
    - ii) cp
    - iii) chmod.
  - c) Give the syntax and different forms of if statement and explain with an example to each. **(4+6+5)**
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- 9. a) Explain the following commands in Linux operating system with an example.
    - i) Cut
    - ii) ls
    - iii) Sort.
  - b) Write a note on vi editor.
  - c) Explain any two looping statements. **(6+4+5)**
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