PRSU BCA PART 3 QUESTION PAPER
PAPER 5: COMPUTER OPERATING SYSTEM - 2017

[Time: Three Hours] [Maximum Marks: 100] [Minimum Pass Marks: 40]

Note: Attempt any two parts from each question. All questions carry equal marks.

UNIT -1

1. (a) What is O.S.? Explain the various services provided by Operating System.
(b) Define three properties of each of the following types of operating system:
(i) Time sharing system
(ii) Multiprogramming
(iii) Real time
(c) What are the five major activities of an operating system with reference to file management?

UNIT - 2

2. (a) Explain the evaluation criteria of CPU scheduling algorithm.
(b) Consider the following set of processes, with the length of CPU burst time given in milli-seconds:

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

The processes are assumed to arrive in order P1, P2, P3, P4, and P5 at time 0.
Illustrate the execution of these processes using SJF, Priority and Round Robin (time sliec = 1 ms) scheduling.
(c) Write short notes on the following:
(i) Multilevel feedback queues
(ii) Medium term scheduling

UNIT - 3

3. (a) Explain memory management without paging.
(b) What is virtual memory? How memory is managed using virtual memory?
(c) Suppose the head of a moving head disk with 200 tracks is currently serving a request for track 143 and has just finished a request for track 125. If the queue of requests is kept in FIFO order:

86, 147, 91, 177, 94, 150

What is the total head movement to satisfy these requests for the following scheduling schemes?
(i) FCFS (ii) SSTF (iii) C-SCAN

UNIT - 4

4. (a) What do you mean by file system ? Explain general model of file system.
(b) Explain linked list allocation methods of files. Write advantages of it over other methods.
(c) Describe the various file accessing methods:

UNIT - 5

5. (a) What is dead lock ? How to prevent them?
(b) Describe the different methods of recovering deadlocks.
(c) Consider the following snapshot of a system:

Process	**Allocation**	**Max.**	**Available**
PO	0012	0012	1520
P1	1000	1750	
P2	1354	2356	
P3	0632	0652	
P4	0014	0656	

Answer the following questions using Banker's algorithm:
(i) What is the content of need matrix?
(ii) Is the system in a safe state?
(iii) If a request from process P2 arrives for (0, 4, 2, 0), can the request be granted immediately?