Reg. No. | | | | | | | | | |

BSCCSC 252

Credit Based Fourth Semester B.Sc. Degree Examination, April/May 2017
COMPUTER SCIENCE
Paper – IV : Operating System and Linux
(Common to all Batches)

Time : 3 Hours Max. Marks : 80

PART – A

1. Answer **any ten** questions from the following. **(10×2=20)**

a) Differentiate between waiting time and turnaround time.

b) What is PCB ?

c) Differentiate hard real time and soft real time systems.

d) What is swapping ?

e) Define fragmentation.

f) What is demand paging ?

g) Mention any four operations on a file.

h) Differentiate between pre-emptive and non-preemptive scheduling.

i) Distinguish between logical and physical address space.

j) What is meant by aging ?

k) Mention different operations of ls command.

l) Write the syntax and purpose of sort command.

P.T.O.

PART – B

Note : Answer **one full** question from **each** Unit.

Unit – I

2. a) List and explain the different services of operating system.
   b) Explain the following :
      i) Time sharing system
      ii) Simple batch system.
   c) What is process ? With a neat diagram explain the different states of a process. **(5+5+5)**

3. a) Explain the responsibilities of operating system in connection with the following system components.
      i) I/O system management
      ii) Secondary storage management.
   b) Explain Queuing-diagram representation of process scheduling.
   c) Explain the benefits of Threads. **(6+5+4)**

Unit – II

4. a) What are the necessary conditions for the deadlock to occur ? Explain.
   b) Consider the following set of processes with the length of the CPU burst time given in milliseconds

Process	Burst time
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.
   c) Explain the data structures used in Bankers algorithm. **(5+5+5)**

5. a) Explain the FCFS scheduling algorithm.
   b) Explain deadlock recovery techniques.
   c) What is semaphore ? Explain any two types of semaphores. (5+5+5)

Unit – III

6. a) What is paging ? Explain paging with an example.
   b) Explain any optimal page replacement algorithm with example.
   c) Explain multiple partition allocation scheme. (5+6+4)

7. a) Mention the different types of directory structures. Describe the tree structured directories.
   b) Explain various file access methods in detail.
   c) Write a note memory compaction. (5+5+5)

Unit – IV

8. a) Explain the following commands in Linux operating system with an example.
      i) cut ii) ls iii) chmod.
   b) Write the general file structure of Linux OS.
   c) Write a shell script to perform the four arithmetic operations using case statement. (5+5+5)

9. a) Explain the different forms of if statements in Linux with example.
   b) Write a note on vi editor in Linux.
   c) Write a Shell script to generate Fibonacci numbers up to N. (5+5+5)
