Credit Based Second Semester B.Com. Degree Examination, April/May 2017

(Common to all Batches)

COMPUTER APPLICATIONS

Paper – IV : Operating Systems and Linux

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **any ten** questions :

(10×2=20)

1. a) What is an operating system ? Give an example.

   b) Define a process.

   c) What are threads ?

   d) Define pre-emptive and non pre-emptive scheduling.

   e) Define a semaphore.

   f) List the necessary conditions for deadlocks to occur.

   g) What is swapping ?

   h) What is a file ? List any two types of files.

   i) What is thrashing ?

   j) List any two Linux distributions.

   k) Write the purpose of pwd and mv commands.

   l) Who is a super user ?

PART – B

Answer **any one full** question from **each** Unit :

Unit – I

2. a) Write a note on batch system.

   b) Explain any five activities of operating system with regard to process management.

   c) Explain with a neat diagram the states of a process. $\qquad$ (5+5+5)

3. a) Explain real time system.

   b) Explain with a neat diagram the various fields of a process control block.

   c) Explain different types of schedulers. $\qquad$ (4+5+6)

Unit – II

4. a) Define the following :

      i) Throughput

      ii) Waiting time

      iii) Turnaround time

      iv) Response time.

   b) Explain readers and writers problem.

   c) What is resource allocation graph ? Give an example. $\qquad$ (4+5+6)

5. a) Consider the following set of processes with length of CPU burst time given in milliseconds.

Process	Burst time
P_1	7
P_2	9
P_3	3
P_4	4
P_5	12

   Draw a Gantt chart using shortest job first scheduling. Find the average waiting time.

b) What is critical section ? Explain the requirements that a solution to critical section problem must satisfy.

c) Explain briefly the methods to handle deadlocks.   (5+5+5)

Unit – III

6. a) Explain internal and external fragmentation.

   b) What is page fault ? Write the steps in handling page fault.

   c) Explain any five attributes of a file.   (5+5+5)

7. a) Explain FIFO page replacement algorithm with an example.

   b) Explain any five operations on a file.

   c) Explain tree structured directory with a neat diagram.   (5+5+5)

Unit – IV

8. a) Explain different types of shells in Linux.

   b) Explain any three directory commands in Linux.

   c) Explain the case statement in Linux with syntax and example.   (5+5+5)

9. a) List five reasons for popularity of Linux.

   b) Write a note on file access permissions in Linux.

   c) Explain positional parameters in Linux.   (5+5+5)