(i) Printed Pages: 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 9 4 0

Exam. Code : 0 0 3 0

Bachelor of Computer Applications 4th Semester

(2054)

OPERATING SYSTEM CONCEPTS AND LINUX

Paper : BCA-16-404

Time Allowed : Three Hours] **[Maximum Marks : 65**

Note :—Attempt **FIVE** questions in all, including Q. No. **9** in Section-E, which is compulsory and taking **ONE** each from Section-A, B, C and D.

SECTION—A

1. Define Operating System and discuss its role from different perspectives. What is distributed operating system ? What are the advantages of distributed operating system ? 13

2. For the following set of processes, develop a Gantt-chart and calculate the average waiting time using :

   (i) FCFS

   (ii) SJF

   (iii) Round Robin (time quantum = 1) algorithms :

Process	Burst time	Arrival time
P_1	3	0
P_2	5	1
P_3	2	2
P_4	5	3
P_5	5	4

13

SECTION—B

3. What is deadlock ? Explain different methods to handle deadlocks. Discuss deadlock avoidance using banker's algorithm in detail. 13

4. Consider the main memory with capacity of 3 frames. Assume that pages of a process are referenced in the order as given below :

   7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3.

   Which one is better FIFO or LRU and why ? 13

SECTION—C

5. (a) What are the important features of Linux that make it unique as an operating system ? Briefly trace its history.

   (b) What are Linux wildcard characters and it what situations would you use these characters ? Explain with examples. 7,6

6. (a) Explain what the Linux command 'chmod' does. What single 'chmod' command can you give that will remove all write access for others (not you or those in your group) for all files in your home directory - while leaving all other permissions on the files intact ?

   (b) What is the purpose of 'sort' command in Linux ? Explain the various options available with the 'sort' command with example. 7,6

SECTION—D

7. (a) Explain the use of one of the commonly available text editors on Linux-based systems, such as the "vi" editor.

   (b) Discuss the methods and commands used to control processes on a Linux system including suspending, resuming, killing and changing the priority of running processes. 7,6

8. What is Linux system administration and what does it entail ? Explain the role and function of a system administration in Linux. Discuss the role of 'tar' facility for system administration with examples. 13

SECTION—E

(Compulsory Question)

9. (a) What is meant by cooperating processes ? Describe advantages of cooperating processes.

   (b) Differentiate between paging and segmentation with examples.

   (c) What is the difference between redirection and piping ? Write a Linux command to list lines 91 through 100 in a given file.

   (d) How do you display how much disk space is used by files and how much disk space is free ? 3,3,3,4