

**BACHELOR IN COMPUTER
APPLICATIONS****Term-End Examination****June, 2007****CS-63 : INTRODUCTION TO SYSTEM
SOFTWARE**

Time : 2 hours

Maximum Marks : 60

Note : Question number 1 is **compulsory**. Answer any **three** questions from the rest.

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1. (a) Explain the steps in 2-pass assembler in detail.
Also give limitations of 1-pass assembler. 7
- (b) Write a shell program to find the sum of the
series : 7
- $$1^2 + 3^2 + 5^2 + 7^2 + \dots + n^2$$
- (c) Write an algorithm to solve mutual exclusion
problem using semaphore and explain the logic. 8

- (d) Consider the following set of processes arrived at the same time :

<u>Process</u>	<u>CPU time</u>
P1	4
P2	2
P3	6
P4	7

Draw the Gantt charts and calculate the average waiting time and average turnaround time for

- (i) RR (Quantum = 2)
- (ii) FCFS. 8
- 2.** (a) How is multiprogramming with dynamic partitioning better than that of fixed partitioning ? Explain with an example. 6
- (b) Explain the graphical user interface features of X-Windows development environment. 4
- 3.** (a) What is the role of a scheduler ? List and explain the types of schedulers. 6

(b) Generate a parse tree for : 4

$$P = a / b + c * d + e - f$$

for the grammar :

list \rightarrow list + digit

list \rightarrow list * digit

list \rightarrow list / digit

list \rightarrow list - digit

list \rightarrow digit

digit \rightarrow 0 | 1 | 2 | 3 | ... | 9 |

4. (a) Write UNIX commands for the following : 4

(i) To display the long listing of files.

(ii) To append the contents of file1 to the contents of file2.

(iii) To display the differences of any two files.

(iii) To copy a file with any other file name in the same directory.

(b) Explain the concept of demand paging and segmentation with diagrams. 6

5. (a) Give an example of an interactive editor and explain its features. 4

(b) Write a shell program to print the alternate digits in a 5-digit number. 6

Example : 7 6 5 8 4

it should display 7 5 4.

