

**BACHELOR IN COMPUTER  
APPLICATIONS  
Term - End Examination  
June, 2006  
CS - 63: INTRODUCTION TO SYSTEM  
SOFTWARE**

Time: 2 hours

Maximum Marks: 60

Note: Question no. 1 is compulsory. Answer any three questions from the rest.

1. (a) Write an algorithm and draw a corresponding flow chart to check whether a given number is an Avogadro number or not. (7)

(Note : e.g.  $153 = 1^3 + 5^3 + 3^3$  is an Avogadro number.)

(b) What are the limitations of a one-pass assembler? Explain the additional tasks that are performed in two-pass assemblers over one-pass assemblers. (7)

(c) Write a shell program to find the Greatest Common Divisor (GCD) for any two given numbers. (7)

(d) Explain why segmentation is required in memory management. How is address mapping implemented in a Segmented System? Give any two advantages of segmentation over a paging scheme. (9)

2. (a) Explain the functions of LEX s / w tool. (4)

(b) What is 4GL? Give any two examples for 4GL. Mention the merits and demerits of usage of 4GLs in applications development. (6)

3. (a) Generate the parse tree for the expression: (5)

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

for the grammar rules given below:

List  $\rightarrow$  list + digit

List  $\rightarrow$  list \* digit

List  $\rightarrow$  list / digit

List  $\rightarrow$  digit

digit  $\rightarrow$  0|1|2|3|4|5|6|7|8|9|

(b) Give the UNIX commands for the following: (5)

- (i) Print the first five lines of any file.
- (ii) Find the number of users logged-on to the system.
- (iii) Print lines not common to any two given files.
- (iv) To sort the numbers in descending order in a data file.
- (v) To copy file with another name file2 in the same directory.

4 (a) what is offline communication and online communication in UNIX? Give at least two commands to carry out each of these communications in UNIX.(6)

(b) Explain the hardware support for the Mutual Exclusion Problem, using semaphores. (4)

5. (a)What is a scheduler? Explain any two types of schedulers. (6)

(b) Write at least four characteristics of an interactive text editor' with the help of an example editor. (4)