

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

June, 2007

CS-63 (S) : INTRODUCTION TO SYSTEM SOFTWARE

Time : 2 hours

Maximum Marks : 60

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

1. (a) Explain the syntax analysis phase of a compiler design. Write the CFG for an arithmetic expression and generate a parse tree for the expression $a + b * c / d - e * f$. 8
- (b) Consider the following set of processes arrived at the same time : 7

<u>Process</u>	<u>CPU time</u>
P1	5
P2	10
P3	8
P4	4

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

- (i) SJF
 - (ii) FCFS scheduling.
- (c) Write an algorithm and draw the corresponding flowchart for generating the fibonacci series. 8
- (d) Write a shell program to encrypt any text file using the following table : 7

Character	to be replaced with
a	p
e	q
i	r
o	s
u	t
s	0
other characters	Remains unchanged
0 to 9	Replace with 9 to 0

2. (a) Give necessary conditions for deadlock occurrence. Explain with an example and draw the resource allocation graph to represent a deadlock. 5
- (b) Explain the concept of dynamic partition memory management. What are the advantages of dynamic partition over fixed-size partition of memory ? 5

3. (a) Write UNIX commands for : 1×5=5
- (i) to find the no. of users logged on the system.
 - (ii) to copy file1 to another file2 in the same directory.
 - (iii) to stop the background process.
 - (iv) to create a file named "cities".
 - (v) to terminate a login session.
- (b) What is a 4GL ? Give two examples of 4GL. Discuss the relative advantages and disadvantages of 4GLs in software development. 5
4. (a) Give suitable example to illustrate both first fit and best fit strategies of disk allocation. 5
- (b) Explain the address mapping procedure in a paging system, with the help of a diagram. 5
5. (a) Create a shell program which will display the following menu and then perform the desired function based on the user's choice : 5
- Functions' Menu :
- 1. PRINT sorted list of users.
 - 2. Change environment variables.
 - 3. To change the permission mode for any file.
- (b) Draw a diagram for the structure of an editor and explain. 5

