

**BACHELOR IN COMPUTER  
APPLICATIONS**

**Term-End Examination**

**June, 2006**

**CS-63 © : INTRODUCTION TO SYSTEM  
SOFTWARE**

*Time : 2 hours*

*Maximum Marks : 60*

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

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1. (a) Explain any two approaches of the compiler development. 6
- (b) Write an algorithm, and draw a corresponding flow chart, to find the sum of a 4-digit number, and also to print the number in reverse order. 7
- (c) Explain at least 5 characteristics of a distributed operating system. 5
- (d) Explain the method to change the file permission modes using octal form, in UNIX, with the help of an example. 5
- (e) Write a shell program which will display a menu as shown below, and perform the desired function based on the user's choice :

FUNCTIONS MENU

- 1 – PRINT-SORTED-LIST-OF-USERS
- 2 – COUNT-USERS WHO LOGGED-ON TO THE SYSTEM
- 3 – COUNT-FILES-IN THE CURRENT DIRECTORY

Type your choice from the above. 7

2. (a) With the help of a diagram, explain dynamic partition memory management. What are the advantages of dynamic partition over fixed-size partition of memory ? 5
- (b) Solve the Mutual Exclusion Problem using Semaphores. 5
3. (a) What are the outputs for the following UNIX commands : 6
  - (i) head word list | wc
  - (ii) who | wc-l
  - (iii) wc-cwl myfile
  - (iv) cat < poem > poem.bak
  - (v) kill 905
  - (vi) cal 06 2005 > calendarfile
- (b) Describe the characteristics of a file system in UNIX. 4
4. (a) Give 4 criteria to be considered while designing the user interface for any interactive debugging system. 4
- (b) Consider the following set of processes which arrive in ready Queue at the same time :

PROCESS	CPU time
P1	4
P2	7
P3	3
P4	6

Calculate the average turnaround time and average waiting time for the following scheduling algorithms :

6

SJF, FCFS and Round Robin (Quantum = 2)

5. (a) Explain any two file protection mechanisms that are needed in a multiuser environment. 5
- (b) What is a loader ? Explain its functions. 5