Name : …………………………………………………………

Roll No. : …………………………………………………………

Invigilator's Signature : …………………………………………

CS/BCA/SEM-5/BCAE-501A/2009-10
2009
ADVANCED UNIX & SHELL PROGRAMMING

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A
(Multiple Choice Type Questions)

1.   Choose the correct alternatives of the following :   10 × 1 = 10

   i)   Which of the following system call verifies the integrity
        of a file system ?

        a)   Tee   b)   Fcsk

        c)   Task   d)   None of these.

   ii)   What $ expr 10 - 20 returns ?

        a)   10   b)   – 10

        c)   Syntax error   d)   None of these.

   iii)   What $ umask 077 returns ?

        a)   077   b)   Umask 077

        c)   Syntax error   d)   None of these.

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iv) Bind( ) system call is associated with

    a) stream   b) semaphore

    c) message   d) none of these.

v) Which of the following returns file descriptor ?

    a) Fork   b) Pool

    c) Tee   d) None of these.

vi) Chroot( ) system call returns

    a) change file   b) open file

    c) both (a) and (b)   d) none of these.

vii) To control new window and communicating with it we use

    a) Fork   b) Mpx

    c) Mpx forks   d) None of these.

viii) For interprocess communication we use

    a) pipes   b) signals

    c) both (a) and (b)   d) none of these.

ix) Information of a file stored in

    a) pipes   b) file table

    c) I-node   d) memory.

x) When kernel releases an inode it actually

    a) Increments the in-core count

    b) Decrements the in-core count

    c) Increments the disk core count

    d) Decrements the disk core count.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 ∞ 5 = 15

2. What does the fork system call do ? Give its syntax and an example. 5

3. Describe the file system layout with diagram in UNIX system. Define swapper process. 5

4. Describe any two methods of interprocess communication in UNIX. 5

5. What is process table ? What is an advantage of executing a process in background. 2 + 3

6. What is Pipe ? What is the difference between named and unnamed pipes ? How can data be read from or written a pipe ? 1 + 2 + 2

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

7. a) Describe scheduling process. 4

   b) Explain how the semaphores are created. 4

   c) What is socket ? Write the usage of it. 1 + 2

   d) What are projection faults ? Why it happens. 2 + 2

8. a) Draw and explain the structure of a buffer pool. 5

   b) Write down the scenarios for retrieval of a buffer. 5

   c) Write the algorithm for buffer allocation. 5
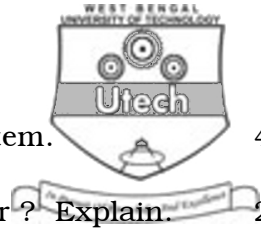
9. a) Write Inode structure of UNIX file system.   4

   b) Can two files have same inode number ? Explain.   2

   c) What is a file table and how is it updated while reading a file ?   4

   d) What is the significance of user Descritor table, when a file is opened / created by a process ?   2

   e) Is UNIX a combination of multiprogramming, multitasking and multiprocessing operation system ? Explain.   3

10. a) Write a short note on memory mapped I/O. Write the advantages of swapping and demand paging.   4 + 3

    b) What is s signal ? Write down the classifications of signal and explain how they are handled by kernel.

        1 + 3 + 4

11. Write notes on any *three* the following :   3 × 5

    a) Open server

    b) Interprocess communication

    c) Organization of UNIX

    d) Swapping strategy

    e) Umask and chmod

    f) Stream.