Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/BCA/SEM-5/BCAE-501A/2010-11
2010-11
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 for the following : 10 × 1 = 10

    i) Zombie state is also known as

        a) running state

        b) sleep and swap out state

        c) pre-empted state

        d) terminated state.

    ii) Which one of the following is not used for Inter Process Communication ?

        a) Pipe   b) Message Passing

        c) Semaphores   d) Streams.

    iii) Which of the following calls is used in Shared Memory ?

        a) Signal   b) Setgrp

        c) Semget   d) Shmdt.

iv) System call used for random access to a file is

    a) Open( )   b) Read( )

    c) Lseek( )   d) none of these.

v) PIPE system call is used to create

    a) named   b) unnamed

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

vi) Daemon for web server in UNIX is

    a) httpd   b) inetd

    c) mysqld   d) squid.

vii) The information of a file is stored in

    a) pipes   b) file table

    c) inode   d) memory.

viii) Bind( ) system call is associated with

    a) stream   b) socket

    c) message   d) semaphore.

ix) File descriptor of standard output device in UNIX is

    a) 2   b) 1

    c) 0   d) 5.

x) Nice command is used to

    a) create a process

    b) terminate a process

    c) set priority of a process

    d) none of these.

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

2. Describe any three file related system calls.

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

4. What is Symbolic link ? What is its use ?   2 + 3

5. What do you mean by Memory mapped I/O ?

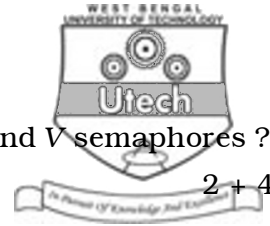6. Write down the attributes of file that are saved in I-node table.

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

7. a) What is signal ? Give the names of five signals and their descriptions.   1 + 4

    b) What are the different ways to send signals ?   4

    c) What are the different ways to handle signals ?   2

    d) Write an algorithm for handling signal.   4

8. a) What is Inter-Process Communication (IPC) ? Mention different techniques for IPC.   1 + 2

    b) What is pipe ? Explain its working methodology.   1 + 1

    c) Explain popen( ), pclose( ), pipe( ), dup( ), dup2( ).   5 × 2

5321   3   [Turn over

9. a) What are semaphores ? What are *P* and *V* semaphores ? Explain. 2 + 4

   b) Write the names of some system call functions for handling semaphore. 3

   c) What is Shared Memory ? Explain. 2 + 1

   d) Write the names of some system call functions for handling Shared Memory. 3

10. a) Define context switching. Draw process state transition diagram.

   b) Describe two main functions of init. What is the process id of init process ?

   c) What is *u*-area ? Explain its fields.

   d) What is a Zombie process ?
   $$(2 + 3) + (2 + 1) + (2 + 3) + 2$$

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

   a) Open Server

   b) Inter-process communication

   c) Umask and chmod

   d) Hard link and soft link

   e) File Related System Call

   f) Stream.