Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/MCA/SEM-5/MCAE-503A/2012-13

2012

ADVANCE UNIX 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 any *ten* of the following : 10 × 1 = 10

   i) In Unix operating system ..... interact with the user.

   a) Kernel b) Shell

   c) Hardware d) None of these.

   ii) Unix is a

   a) Multi-user System b) Single User System

   c) None of these d) Both of (a) & (b).

   iii) Processing in Unix can communicate with each other using

   a) Path. b) Line.

   c) Pipes. d) None of these.

iv) The fork system calls returns a ..... to the child.

a) – 1 b) 1

c) 0 d) A non zero value.

v) SIGILL is used to

a) The phone line, the process was using has being hang up.

b) Send to kill a process.

c) The user has hit the DEL key to interrupt the process.

d) None of these.

vi) Process ID 0 is usually

a) init process b) child process

c) scheduler process d) None of these.

vii) Changing Group ID s is changed by

a) getpid ( ) b) setuid ( )

c) getuid ( ) d) setgid ( ).

viii) Every open file has an associated "current file offset", normally

a) a negative integer b) a float number

c) a non-negative integer d) none of these.

ix) Wnen we are executing a shell script the shell acts as

a) An interpreter b) A compiler

c) An operating system d) None of these.

x) cmchk command is used to

a) Find out the block size on your file system

b) Find out the file size

c) Find out the disk space

d) None of these.

xi) Which of the following is a command for searching a pattern in a file ?

a) Find b) Grep

c) Lookup d) None of these.

xii) du command report

a) the disk space available in the file system

b) the disk space used by specified files and directories

c) the file size

d) none of these.

xiii) The shell metacharacter $# represents

a) Number of arguments supplied to the shell script

b) Total number of files in the current directory

c) Total number of users who have logged in

d) Total number of processes running in the background.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Write about File sharing of Unix system.

3. Write about the interfaces of Unix system.

4. Explain the following commands

a) mkdir

b) grep.

5. What is system call ? Write about fcntl ( ) function.

6. What do you mean by interprocess communication ? Write in details about pipes.

7. Define Memory — Mapped I/O. Explain with example.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

8. a) What is shared memory ?
   b) What is the importance of it ?
   c) Explain the detail about the process of "Allocating a shared memory segment" ?

9. a) What is a reliable signal ? Explain the four primary features of reliable signals.
   b) Write in details about the interrupted stystem calls.
   c) Write in detail about kill and raise functions.

10. a) What is signal function ? Write and explain about the structure of signal function.
    b) What are the phases in signaling processing ? Explain what is meant by life time of signal ?
    c) Write about the following signals :
       i) SIGCHILD
       ii) SIGCOUNT.

11. Explain the following system calls with syntax
    a) fork ( ) b) wait ( )
    c) write ( ) d) exit ( )
    e) vfork ( ) f) open ( ).

12. a) What is semaphore ? How to synchronize processes using semaphores ?
    b) Write about semaphore adjustment on exit.
    c) Write Timing comparison of semaphores versus Record Locking.

13. Briefly explain the following any *three* of the following : 3 × 5 = 15
    a) File I/O
    b) Process Identifiers
    c) Process Control
    d) Message Queue.