Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-5/BCA-502/2011-12

2011

UNIX AND 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 any *ten* of the following : $10 \times 1 = 10$

   i) Sort–*n* emp

      a) sort by primary key

      b) numeric sorting

      c) sort by secondary key

      d) none of these.

   ii) $$ represents

      a) number of arguments specified in command line

      b) name of the executed command

      c) exit status of the last command

      d) PID of the current shell.

iii) How would you check that two numbers are equal ?

a) test $a – eq $b b) test $a = $b

c) test $a == $b d) none of these.

iv) The startup file for vi editor is

a) .profile b) .login

c) .startup d) none of these.

v) The command pr–d formats input

a) can be numbered

b) is double spaced

c) offset from the left

d) none of these.

vi) If administrator wants to see the password of user, he will search for the file

a) etc/shadow b) etc/password

c) etc/null d) none of these.

vii) The PID is generated by

a) shell

b) kernel

c) both shell & kernel

d) none of these.

viii) Address relocation is done by

a) NIS b) Linus administrator

c) Linker d) none of these.

ix) The state of the file system is contained in

a) Inode block b) Boot block

c) Super block d) Data block.

x) To see the last access time of various files in a file system the command is

a) ls – lu b) ls – l

c) ls – lat d) ls – mt.

xi) Your shell script has a name ls. If you execute ls

a) your script would get executed

b) the ls command would get executed

c) whether script is executed or command is executed depends upon the value of PATH

d) both ls and the script would get executed one after another.

xii) To copy a file "file l" to "file 2" which of the following commands will you use ?

a) cat file1 file 2

b) cat file 1 0>file2

c) cat 1> file2 0< file1

d) cat 2> file2 0<file1.

GROUP – B

(Short Answer Type Questions)

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

2. Differentiate between LILO and GRUB.

3. a) Write a single command in unix to do the following : 2

Output of who should be displayed on the screen with value of total number of users who have logged in displayed at the bottom of the list.

b) Interpret the following command : 2

grep "^[^^]" filename

c) Name the process whose pid is zero. 1

4. a) Write a command line to count the number of times a specific character, say "?" appears in a given file. 2

   b) What should be the output of the following shell script :

```
x=
[ –n $x ]
echo $?
[ –z $x ]
echo $?
```

   2

   c) What does kill $! do ? 1

5. a) What are block and character devices ? 2

   b) What are the different run levels in UNIX ? 3

6. Explain UNIX file system briefly.

GROUP – C

(Long Answer Type Questions)

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

7. a) Draw a neat block diagram to represent the System Kernel and describe the functions of various modules in it. 6

   b) What do you mean by physical and logical blocks ?
   A unix file system has 0·5 kB block size with 32 bit address. The inode has 12 direct, one indirect, one double indirect and one triple indirect address. What is the maximum file size it can access ? 2 + 4

   c) Why is the memory copy of inode block and super block required ? 3

8. a) What do you understand by PATH variable ? How does the kernel access a file ? 2 + 3

   b) You tried to copy a file foo from another user's directory, but you got the error message "cannot create file foo". You have written permission in your own directory. What could be the reason and how do you copy the file ? 2 + 2

   c) Which file attributes change when you copy a file from another user account ? 1

   d) Use find to remove all the files which are modified one month before from the posix directory under your parent directory. 3

   e) How is chown different from chgrp when it comes to renouncing ownership ? 2

9. a) Write a shell script to check whether a string is palindrome or not. 5

   b) Write a shell script to list all primes upto n. 5

   c) Write a shell script to list all Armstrong numbers up to 1000. 5

10. a) What is unique command ? Explain with example. 4

    b) Arrange the data of a file in ascending and descending orders. 4

    c) Write a shell script to check whether a file is readable, writeable or executable. 5

    d) Explain the command to print all characters in a file. 2

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

a) Symbolic Link

b) Mounting of file system

c) Device files

d) At and batch command

e) IFS

f) Sticky bit

g) Standard input, standard output and standard error.