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Paper Code : BCA-502

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) What does kill $! Do ?
      a) kills all processes spawned by user
      b) kills all background processes
      c) kills the most recent background process
      d) kills the oldest background process.

   ii) The command for deleting a directory which is empty, is
      a) rmdir b) rm –r
      c) rm* d) rm –rd.

   iii) To see the last access time of various files in a file system the command is
      a) *ls-lu* b) *ls*-1
      c) *ls-lat* d) *ls-mt*.

iv) The command cal j 1997 would give the output as
   a) the calendar of January, June and July 1997
   b) only calendar of January 1997
   c) an error
   d) none of these.

v) The available disk space can be determined under UNIX using the command
   a) dir b) df
   c) du d) file.

vi) Echo '$SHELL' will print
   a) SHELL
   b) $SHELL
   c) value of SHELL variable
   d) none of these.

vii) $? represents
   a) no. of arguments specified in command line
   b) name of executed command
   c) exit status of last command
   d) none of these.

viii) The command cp [!0-9] ?? Prog will
   a) copy all files started with not a number to Prog directory
   b) copy all files whose file name is three characters in length started with not a number to Prog directory
   c) both of these
   d) none of these.

ix) How could you check that two strings are equal ?
   a) test $a – eq $b b) test $s – equal $b
   c) test $a = $b d) test $a = = $b.

x) Sort –*n* emp is
   a) sort by primary key
   b) numeric sorting
   c) sort by secondary key
   d) none of these.

xi) UNIX uses ls to list files in a directory. The corresponding command in MS environment is

a) if b) listdir

c) dir d) none of these.

xii) Which of the following files in the current directory is identified by the regular expression a?b* ?

a) afile b) aab

c) abb d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. What is the difference of running a background job with nohup command and without nohup command ? What is sticky bit ? 4 + 1

3. a) What do you mean by absolute pathname and relative pathname ?

   b) Is it possible that two files have same *i*-node number ? Justify. 2 + 3

4. How is a process created ? Mention briefly the role of the fork and the exec system calls in process creation.

5. Write a shell script to check whether an integer is prime or not.

6. What does the directory file contain ? What does *cd* do when used without argument ? 3 + 2

GROUP – C

(Long Answer Type Questions)

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

7. a) What is *i*-node ? What is the purpose of it ? In what way a programmer can use *i*-node ?

   b) What will be the output of the command *cat file 1 file 1 file 1* ?

   c) Explain the role of the set-user-id and sticky bit.

   d) Write a shell script to print only those words of the file FILE, whose beginning and last characters are same. 5 + 1 + 2 + 7

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

   b) Write a shell script to list all primes up to *n*.

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

9. a) A file name MARKS consists of Name, Marks1, Marks2, Marks3 and Marks4 fields, separated by comma. Print the marks of those whose average marks are equal to or greater than 50%, in descending order of average marks, followed by alphabetical order of name in the following format :

   Sl. No. Name Avg. Marks

   b) Write a shell script to print given number in reverse order, for example, if number is 123 then it must be printed as 321. 8 + 7

10. a) Write a shell script to delete all files in root and its subdirectories having extension 'tmp', which have not been created or referred to in the last 15 days.

    b) Explain the structure of UNIX file system. 7 + 8

11. Answer any *three* of the following : 3 × 5

    a) Describe internal and external UNIX commands

    b) Describe any four shell variables.

    c) Interpret the following instructions :

    (i) ls –a*

    (ii) cp ?aa* ? ab*

    d) Explain grep with example.