AMIETE – CS/IT (NEW SCHEME)   -   Code: AC71/AT7

Subject: UNIX SYSTEMS PROGRAMS

Time: 3 Hours | **DECEMBER 2010** | Max. Marks: 100

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after half an hour of the commencement of the examination.**
- **Out of the remaining EIGHT Questions, answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 **Choose the correct or the best alternative in the following:** (2×10)

a. Which of the following UNIX commands will <u>not</u> take the user *student5* to his personal home directory?

(A) cd
(B) cd /~
(C) cd ~
(D) cd ~student5.

b. What is a *shell* in UNIX?

(A) a program through which users can issue commands to UNIX
(B) a window management system
(C) the login screen
(D) the thing that rides on the back of a turtle in UNIX

c. What is the generic syntax for all UNIX commands?

(A) command name, followed by arguments, followed by options
(B) command name followed by arguments
(C) command name followed by options
(D) command name, followed by options, followed by arguments

d. In ksh, what is the difference between the expressions VAR and $VAR?

(A) VAR refers to a variable name and $VAR to its value
(B) VAR refers to a variable value and $VAR to its name
(C) VAR refers to an integer variable and $VAR to a string variable
(D) both expressions refer to the same thing

e. Which of these commands will set the permissions on file *textfile* to read and write for the owner, read for the group, and nothing for everyone else?

(A) chmod 046 textfile
(B) chmod 640 textfile
(C) chmod 310 textfile
(D) chmod rw r nil textfile

f. Which of the following is not a UNIX file type?

(A) plain file   **(B)** special file
(C) batch file   **(D)** directory file

g. When you use the ln command, which of the following occurs?

(A) a file is created that points to an existing file
(B) a file is created that is a copy of an existing file
(C) a file is moved from one location to another
(D) a file is renamed

h. What UNIX command is used to update the modification time of a file?

(A) time   **(B)** modify
(C) cat   **(D)** touch

i. Which command will print the contents of all files in the current directory whose names start with the character 'a' and end with a period ('.') followed by any two characters followed by a number?

(A) ls a*.??[0-9]   **(B)** ls a*.??#
(C) cat a*.??[0-9]   **(D)** cat a?.**#

j. The apropos command is used to:

(A) obtain a list of commands whose description contains given keywords
(B) change the system language to French
(C) get help on a particular command
(D) create a new binary file

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. What is the purpose of stat, fstat and lstat functions   **(6)**

b. What are different file types? Explain with example   **(7)**

c. Give the applications of sticky bit and symbolic links.   **(3)**

Q.3 a. Explain system calls and library functions. Support your answer with suitable examples.   **(7)**

b. Explain any three file functions. Give its syntax.   **(6)**

c. Give the applications of atomic operations used in file I/O.   **(3)**

Q.4 a. What do you mean by orphand process? **(**

  b. Explain the working of telnet logins and network logins. **(6)**

  c. Explain Process Termination. Write short notes for the following functions:-
      (i) setjmp()   (ii) longjmp()   **(7)**

Q.5 a. Write a programme for reading and writing data to a stream. **(7)**

  b. Explain features of password file and shadow passwords. **(6)**

  c. Explain the working of logging accounting. **(3)**

Q.6 a. What do you understand by the concept "Process Control"? Explain any four
      various functions used in process control. **(8)**

  b. Write a programme to illustrate the process accounting. **(5)**

  c. Explain race conditioning. **(3)**

Q.7 a. Explain Daemon Process? Give its characteristics. **(4)**

  b. Compare canonical mode and non-canonical mode. **(4)**

  c. Write short notes for the following:-
      (i) Stty function   (ii) Baud rate function
      (iii) Line control function   (iv) Terminal identification **(8)**

Q.8 a. Explain various types of signals. Support your answer with suitable examples.
                                                                               (8)

  b. Write a program to illustrate use of sleep functions. **(4)**

  c. Explain features of job control signals. **(4)**

Q.9 a. Write short notes on **(10)**

      (i) System V IPC
      (ii) Message Queues
      (iii) Semaphores

  b. What do you mean by the inter process communication? Also explain the
      concept of pipes. **(6)**