

**AMIETE – CS/IT (Current & New Scheme)**

Time: 3 Hours

**June 2019**

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. The cp command uses:  
(A) neither standard input nor standard output file  
(B) standard output file  
(C) both input and output file  
(D) standard input file
- b. What is a *shell* in UNIX?  
(A) the login screen  
(B) a window management system  
(C) a program through which users can issue commands to UNIX  
(D) the thing that rides on the back of a turtle in UNIX
- c. The usual su command syntax is  
(A) su - userID  
(B) su-pd  
(C) su-pwd  
(D) su - userID
- d. Which command sends the word count of the file infile to the newfile?  
(A) wc <infile >newfile  
(B) wc infile >newfile  
(C) wc infile - newfile  
(D) wc infile | newfile
- e. \_\_\_\_\_ is the default end-of-file character.  
(A) ^P  
(B) ^E  
(C) ^D  
(D) None of these
- f. The kernel maintains a file table for all open files. Each file table entry contains  
(A) A pointer to the v-node table entry for the file  
(B) The current file offset  
(C) The file status flags for the file  
(D) All of these
- g. Which function is called to open or create a file?  
(A) make  
(B) open  
(C) create  
(D) Get

- h. 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`
- i. By convention, UNIX system shells associate file descriptor 0 with the standard \_\_\_\_\_ of a process, file descriptor 1 with the standard \_\_\_\_\_ file descriptor 2 with the standard \_\_\_\_\_  
(A) error, input, output (B) output, input, error  
(C) input, output, error (D) None of these
- j. 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*.[0-9]`  
(C) `cat a*.[0-9]` (D) `cat a*.*`

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

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- Q.2** a. Draw the architecture of UNIX operating system. Explain the functionality of each component. (9)  
b. Explain system calls and library functions. Support your answer with suitable examples. (7)
- Q.3** a. Explain the procedure of process creation in UNIX with the help of system calls. (8)  
b. What are file access permissions? List all commands to alter the file permissions. (8)
- Q.4** a. Explain Zombie and orphan process with reference to UNIX. (8)  
b. Explain shadow Passwords. Where are shadow passwords used. (8)
- Q.5** a. Describe the similarities and differences between *wait* and *waitpid* functions. (8)  
b. Explain the use of 'exec' functions. (8)
- Q.6** a. Explain various methods of terminating a process in detail. (8)  
b. Differentiate between :  
(i) `setjmp` and `longjmp` functions  
(ii) `getrlimit` and `setrlimit` functions (4+4)
- Q.7** a. Write a brief note on Alarm and pause function (8)  
b. Explain Kill and Raise functions with the help of examples. (8)
- Q.8** a. Draw the diagram of BSD syslog facility. Explain the three ways to generate log messages. (8)  
b. Define daemon processes. Mention coding rules for daemon processes. (8)
- Q.9** Explain the following in detail (8×2)  
(i) Semaphores  
(ii) FIFO