

AMIETE – CS/IT (Current & New Scheme)

Time: 3 Hours

December - 2017

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. A standard UNIX system includes a set of _____ and a set of _____.
- (A) Commands, files (B) Libraries, Applications
(C) Libraries, files (D) Files, Applications
- b. Which command is used to remove a directory?
- (A) rd (B) rmdir
(C) dldir (D) rdir
- c. Which symbol is used to separate more than one command in the same command line?
- (A) \$ (B) #
(C) : (D) ;
- d. The access time and the modification time of a file can be changed with the _____ function.
- (A) utime (B) ctime
(C) ftime (D) None of these
- e. A program is read into memory and is executed by the kernel as result of one of the _____ exec functions.
- (A) four (B) eight
(C) six (D) five
- f. Directories are deleted with the
- (A) deldir (B) rmdir
(C) erasedir (D) fdir
- g. Is a process calls wait function, which may not happen
- (A) Process may block, if all of its children are still running
(B) Process may return with termination status of child
(C) Process may return with an error, if it doesn't have any child processes
(D) All of these

- h. 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
- i. Data is read from an open file with the read function. If the read is successful, the number of bytes read is returned. If the end of file is encountered, _____ is returned.
(A) 1 (B) -1
(C) 0 (D) None of these
- j. _____ is indirect pointer to a file, unlike _____ which points directly to i-node of the file.
(A) Hard link, Symbolic link (B) Hard link, Index link
(C) Symbolic link, Hard link (D) Symbolic link, Index link

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

- Q.2** Write short notes on the following: (4×4)
(i) open function (ii) lseek function
(iii) read function (iv) write function
- Q.3** a. With the help of suitable diagram, explain UNIX file system. What are the various types of files supported in UNIX? (8)
- b. A file size of 0 is valid for a regular file. The *st_size* field is defined for directories and symbolic links. Should we ever see a file size of 0 for a directory or a symbolic link? (8)
- Q.4** a. Explain shadow password file? Who has access to content of shadow password file? (8)
- b. How do you define orphan process? (3)
- c. Explain the working of telnet logins and network logins. (5)
- Q.5** a. What are the reasons for use of interpreter files in UNIX? (5)
- b. Explain various functions that set user IDs for the following:- (5)
(i) Real user ID
(ii) Write a program that prints real and effective user IDs.
- c. What does fork() do? Differentiate between fork() and vfork()? (6)

- Q.6** a. Write notes on: (8)
(i) setjmp and longjmp functions
(ii) getrlimit and setrlimit functions
- b. What are the characteristics of sessions and process groups. (8)
- Q.7** a. Explain briefly Kill and raise function (8)
- b. Explain the use and functioning of signal function in detail. (8)
- Q.8** a. What are the coding rules of Daemon Processes. (5)
- b. Write short notes on Error Logging. (5)
- c. Briefly explain the canonical and non canonical modes of input processing. (6)
- Q.9** a. Define Pipes. What are popen and pclose functions in Interprocess communication? (8)
- b. Define Message Queues and Semaphores? Explain the terms with the help of Example. (8)