

AMIETE – CS/IT (Current & New Scheme)

Time: 3 Hours

JUNE 2016

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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 45 Minutes 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)

- The part of the Unix operating system that interacts with the hardware is called
(A) GNU project (B) The kernel
(C) The shell (D) Linux
- The commonly used UNIX commands like date, ls, cat, etc. are stored in
(A) /dev directory (B) /bin and /usr/bin directories
(C) /tmp directory (D) /unix directory
- Use the following command to save and exit from Vi editor.
(A) ZZ (B) :wq
(C) :q! (D) Both (A) and (B)
- The command to count the number of files in the current directory by using pipes, is
(A) ls | wc (B) ls -l | wc -l
(C) ls | wc -w (D) ls | ws -c
- A file with permission status of RWXR_XR__ indicates
(A) The owner has all permissions, the group has only Read permissions.
(B) The owner has only Read and Execute permissions.
(C) The owner has all permissions, the group has only Read and Execute permissions.
(D) The group has all permissions, the owner has only Read and Execute permissions.
- Which command is used to terminate all processes in your own system except the login shell?
(A) kill 1 (B) kill 0
(C) cancel all (D) cancel 1
- The purpose of the PATH variable is to
(A) Show the current directory
(B) Show the directory path of a file
(C) Tells the shell what directories to search when a command is entered
(D) Both (A) and (C)

- h. To find out a file's inode number, use this option on the "ls" command.
(A) -i (B) -inode
(C) -num (D) -in
- i. The "nice" command is used to
(A) Communicate with other users
(B) Improve relationships
(C) Change Priority levels of running processes
(D) Create processes
- j. New users are added into this file.
(A) /passwd (B) /usr
(C) /etc/passwd (D) /home

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

- Q.2** a. LINUX is freely available UNIX Type OS. Comment. List the essential characteristics of LINUX operating system. (8)
b. Write and discuss the compiling steps of a kernel. (8)
- Q.3** a. Explain the following system calls: (8)
(i) Nice (ii) Exit
(iii) Wait (iv) Fork
b. Discuss the concept of signals, interrupts and scheduler in process management. (8)
- Q.4** a. What is the difference between static and dynamic memory allocation in the kernel segment? (8)
b. What is paging under LINUX explain in detail? (8)
- Q.5** a. Explain the types of interprocess Communication Supported by LINUX. (8)
b. What is the basic difference between pipes and FIFOs? How does ptrace help in debugging? (8)
- Q.6** a. Draw the basic schematic structure of a UNIX file system and discuss the basic arrangement of a typical UNIX inode table. (8)
b. Explain the structure of Ext2 file system. Name any four file systems being used by LINUX operating system. (8)
- Q.7** a. Discuss character and block oriented devices in detail. (8)
b. Explain the various transfer modes of DMA controller. (8)
- Q.8** a. Write and briefly discuss the main functions of UDP and TCP in LINUX network implementation. (8)
b. What is a socket structure? Explain the general structure of a socket address. (8)
- Q.9** a. What is debugging? Discuss various methods of debugging for LINUX kernel. (8)
b. Discuss the Intel multi-processor specification. Also discuss the problems associated with multiprocessor systems. (8)