ROLL NO. _____

Code: AC72/AT72   **Subject: LINUX INT**

AMIETE – CS/IT

Time: 3 Hours   **JUNE 2013**   **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)**

     a. A process can influence the access mode of new files that have to be created via the system call _____

        (A) umask   **(B)** setfsuid
        (C) chroot   **(D)** none of these

     b. Inodes contain information such as _____

        (A) file's owner   **(B)** access rights
        (C) both **(A)** & **(B)**   **(D)** none of these

     c. A software interrupt is like a hardware interrupt, an event that can be activated which leads to the processing of the interrupt handling routine.

        (A) FALSE   **(B)** TRUE

     d. The linear addresses need to be converted into physical address by _____

        (A) the processor   **(B)** a separate MMU
        (C) any of the above   **(D)** None of these

     e. Every Ethernet adapter has a completely unique address which is _____ bytes long

        (A) 2   **(B)** 4
        (C) 6   **(D)** 8

     f. Which of the following is not a way for interprocess communication?

        (A) files   **(B)** shared memory
        (C) pipes   **(D)** DMA

g. Communication via _____ is the oldest way of exchanging data betwe...
   programs,

   (A) data   **(B)** files
   (C) pointers   **(D)** folders

h. _____ is an important factor for file system

   (A) random access   **(B)** speed of access
   (C) None of these   **(D)** Both **(A)** & **(B)**

i. In the world of PnP, the concepts device and function are used to recognize
   _____ units.

   (A) hardware   **(B)** software
   (C) flowchart   **(D)** Both **(A)** & **(B)**

j. Through _____ it is possible to use modems and telephone lines to set up
   network links to anywhere in the world

   (A) SLIP   **(B)** PPP
   (C) PLIP   **(D)** none of these

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

Q.2 a. What are the characteristics of LINUX?   **(8)**

       b. "New Kernel is generated in 3 steps". What are those 3 steps? Explain in
          detail.   **(8)**

Q.3 a. What is the main advantage and drawback of using micro kernel architecture?
                                                             (8)

       b. Can the process be reactivated once it is interrupted?   **(8)**

Q.4 a. Describe in detail how the virtual Address Space for a Linux Process is used.
                                                             (8)

       b. Describe the process of "Converting the Linear address into a physical address"
          through a diagram.   **(8)**

Q.5 a. Discuss how Shared Memory is used for inter process communication.   **(8)**

       b. Explain how ptrace is used by debuggers.   **(8)**

Q.6 a. Describe the opening of a file operation of the textbook.   **(8)**

   b. What is Superblock? What does it contain?   **(8)**

Q.7 a. What is the difference between character and block devices?   **(4)**

   b. Discuss the method to create a Kernel Driver for the PC Speaker.   **(12)**

Q.8 a. Describe the socket structure with the help of a diagram, draw the socket and the relationship to its substructure.   **(9)**

   b. Discuss the network devices: PLIP and the dummy device in Linux.   **(7)**

Q.9 a. What are modules? Describe how data mapping takes place between modules.
                                                                          (10)

   b. What are the problems with multiprocessor systems? How are they overcome in UNIX-like systems?   **(6)**