

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

Time: 3 Hours

**JUNE 2017**

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. The commonly used UNIX commands like date, ls, cat, etc. are stored in  
 (A) /dev directory (B) /tmp directory  
 (C) /bin and /usr/bin directories (D) /unix directory
- b. The simplest variant of connectionless data exchange are:  
 (A) Semaphores (B) Signals  
 (C) Message Queues (D) None of these
- c. What command do you use to create Linux file systems?  
 (A) Fdisk (B) Mount  
 (C) Fsck (D) Mkfs
- d. What command is used to list the files chap01, chap02 and chap04?  
 (A) ls - x chap0[124] (B) ls chap[124]  
 (C) ls chap\* (D) ls chap0[124]
- e. The structure proc\_root\_inode\_operations provides \_\_\_\_\_.  
 (A) the component readdir in the form of the proc\_readroot() function  
 (B) the component lookup as the proc\_lookup function  
 (C) Both (A) & (B)  
 (D) None of these
- f. Linux components include the \_\_\_\_\_.  
 (A) kernel (B) shell  
 (C) file system & user programs (D) All of these
- g. rmdir remove directory if \_\_\_\_\_.  
 (A) Directory mayn't be empty (B) Directory must be empty of all files  
 (C) Both (A) & (B) (D) None of these
- h. The first version of the LINUX kernel became available on the internet in \_\_\_\_\_  
 (A) 1991 (B) 1981  
 (C) 2001 (D) None of these

Code: AC72/AT72/AC117/AT117

Subject: LINUX INTERNALS

- i. How many entries are made in the Kernel for each file used in the system?  
 (A) Three (B) Two  
 (C) One (D) Four
- j. What command is used with vi editor to replace text from cursor to right  
 (A) S (B) R  
 (C) s (D) None of these

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

- Q.2** a. What are the main characteristics of LINUX? Explain. (10)  
 b. "New Kernel is generated in 3 steps". Explain these 3 steps. (6)
- Q.3** a. Compare file structure and inode structure. (8)  
 b. Explain the meaning of the system call *nice*. (8)
- Q.4** a. Explain how paging is implemented in Linux. (8)  
 b. Explain the process of Static Memory Allocation in the kernel segment. (8)
- Q.5** a. Explain Inter process Communication? How to create IPC with sockets? (8)  
 b. What are pipes? Explain their functionality. (3)  
 c. Explain any two system V IPC techniques. (5)
- Q.6** a. Explain the structure of Ext2 file system. Name any four file systems being used by LINUX operating system. (8)  
 b. Illustrate the link between the operating system kernel & the different file systems. (8)
- Q.7** a. Write a note on read() and write() functions. (8)  
 b. Write a code outline for essential components of a dynamically loading driver. What basic rules must be followed while using a dynamically loading driver? (4+4)
- Q.8** a. Briefly explain the layer model of the network implementation using TCP/IP. (8)  
 b. Explain the socket structure with the help of a diagram, draw the socket and the relationship to its substructure. (8)
- Q.9** a. What is the need for coding Atomic Operations in the header file asm / atomic.h? (8)  
 b. What are the problems with multiprocessing systems? How LINUX kernel handles these problems? (8)