

AMIETE – CS/IT

Time: 3 Hours

DECEMBER 2012

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 full form for ELF is:

- (A) Executable and linear format (B) Extended linked format
(C) Executable and linked format (D) Executable and linear file

b. The LILO files are stored in the /boot/ directory or /etc/lilo/ directory.

- (A) True (B) False

c. The system call _____ enables a process to change its executing program

- (A) execve (B) nice
(C) pause (D) getuid

d. The expansion for tgid is:

- (A) Test Group ID (B) Task Group ID
(C) Thread Group ID (D) None of these

e. The available methods for connection-oriented data exchange are pipes, named pipes, also known as:

- (A) LILO (B) FIFO
(C) FILO (D) LIFO

f. The root directory of the *Proc* file system has the inode number _____.

- (A) 0 (B) 1
(C) Either (A) or (B) (D) None of these

Code: AC72/AT72

Subject: LINUX INTERNALS

- g. The first version of the LINUX kernel became available on the internet in _____
- (A) 1991 (B) 1981
(C) 2001 (D) None of these
- h. LINUX supports two groups of adapters for Ethernet. These include the classic Ethernet cards connected to the PC bus and adapters linked to the PC via the parallel interface or the PCMCIA bus.
- (A) False (B) True
- i. LINUX Kernel is written in which languages?
- (A) C & C++ (B) C # & C
(C) only C (D) C & assembler
- j. The 8235 timer chip has _____ internal timers.
- (A) 3 (B) 4
(C) 2 (D) 5

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

- Q.2** a. Explain sequence of steps to compile kernel. (8)
- b. What are the strengths and drawbacks of LINUX? (8)
- Q.3** a. What is micro kernel? What is the main advantage and drawback of using micro kernel architecture? (8)
- b. Explain the meaning of the system call *nice*. (8)
- Q.4** a. Describe the evolution of virtual memory in LINUX. (8)
- b. Provide a complete list of memory page flags along with the respective descriptions. (8)
- Q.5** a. Describe how a debugger uses ptrace. (12)
- b. Draw a diagram depicting a deadlock scenario while locking files. Explain briefly. (4)
- Q.6** a. Describe the PROC file system. What are the disadvantages of using this file system? (8)

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- b. What entries are kept in the directory cache? Why? (8)
- Q.7** a. Write a code outline for essential components of a dynamically loading driver. Also write down basic rules while using a dynamically loading driver. (8)
- b. How many broad types of devices are allowed in LINUX? Describe them. (8)
- Q.8** a. Describe the layer model of the network implementation. (12)
- b. What are the differences between SLIP and PLIP? (4)
- Q.9** a. What are the problems with multiprocessing systems? How LINUX kernel handles these problems? (10)
- b. Draw a diagram depicting the Daemon for dynamic loading and unloading of modules. (6)