## AMIETE – CS/IT (NEW SCHEME) - Code: AC72/ATA

## Subject: LINUX INTERNALS

Time: 3 Hours

**DECEMBER 2010** 

2/ATA Chille Olimpicon Max. Marks: 100

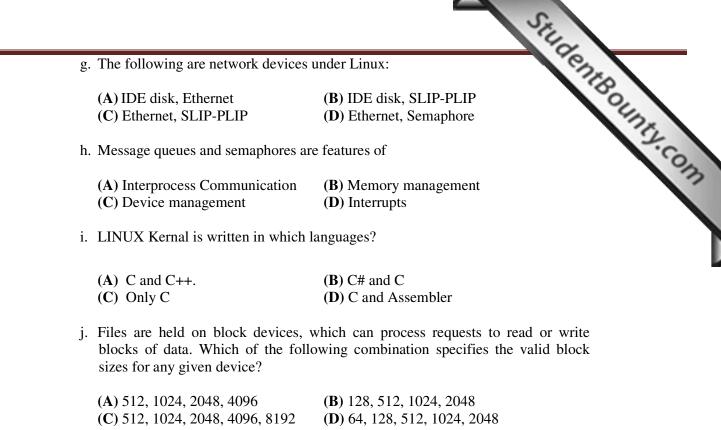
**NOTE:** There are 9 Questions in all.

- 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.

(	Choose the correct or the best altern	ative in the following:	(2×10)
а	<ul> <li>In Linux, a task is a generalization of (A) Thread</li> <li>(B) Class</li> <li>(C) Process</li> <li>(D) Program</li> </ul>	of the usual concept.	
b	b. How many entries are made in the k	ernel for each file used in the system?	
	<ul><li>(A) Three</li><li>(C) One</li></ul>	( <b>B</b> ) Two ( <b>D</b> ) Four	
с	. The expansion for Linux kernel acro	onym LILO is:	
	<ul><li>(A) Last In Last Out</li><li>(C) Last In Linux Out</li></ul>	<ul><li>(B) LInux LOader</li><li>(D) LInux Last Out</li></ul>	
d	I. The simplest variant of connectionle	ess data exchange are:	
	<ul><li>(A) Signals</li><li>(C) Message Queues</li></ul>	<ul><li>(B) Semaphores</li><li>(D) None of the above</li></ul>	
e	All the information which is essentia	al for managing the file system is held in	
	<ul><li>(A) Data block</li><li>(C) Boot bock</li></ul>	<ul><li>(B) Inode block</li><li>(D) Super block</li></ul>	
f	. In mode, the driver	constantly interrogates the hardware.	
	<ul><li>(A) Interrupt</li><li>(C) Either of the above</li></ul>	<ul><li>(B) Polling</li><li>(D) None of the above</li></ul>	

AC72/AT72 / DEC \_ 2010

1



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

Q.2	a.	Mention any four main characteristics of LINUX operating system.	(4)
	b.	Explain sequence of steps to compile Kernel.	(8)
	c.	Mention any four group device drivers in LINUX along with subdirector which they are stored.	ries in (4)
Q.3	a.	Describe the six most important states in a process management.	(6)
	b.	Explain any two process management algorithms.	(6)
	c.	Mention any four system calls and give its syntax.	(4)
Q.4	a.	Explain how linear address translation is done in architecture independent memory model.	endent (6)
	b.	Mention any four memory page flags used in paging under LINUX.	(4)
	c.	Explain working of block device caching. Mention functions used in device caching.	block ( <b>6</b> )

AC72/AT72 / DEC \_ 2010

2

		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
			dens
Q.5	a.	Explain how inter-process communication is supported by LINUX in l between process and network.	cerne (8) (3) (5)
	b.	Explain pipes and give their functionality.	(3)
	c.	Explain any two system V IPC techniques.	(5)
Q.6	a.	Explain different layers in the LINUX file system. Draw the block diagonal layered file system.	
	b.	Explain structure of a Ext2 file system Proc file system.	(8)
Q.7	a.	Mention any four characters and block devices used in LINUX.	(4)
	b.	Explain different transfer operation modes supported by the DMA controll	er? (4)
	c.	Explain working of polling and interrupts in device drivers.	(8)
Q.8	a.	Explain TCP and UDP protocols.	(8)
	b.	Explain any two network devices under LINUX.	(8)
Q.9	a.	Can the LINUX kernel be debugged using GNU debugger gdb? If so, where the conditions needed to be satisfied?	nat are (4)
	b.	Mention various module function used in Kernel. Explain Kernel daemon	. (4)
	c.	In the development of the multi-processor LINUX system, mention the ch needed to upgrade kernel.	nanges (8)

AC72/AT72 / DEC \_ 2010

2

AMIETE \_ CC/IT (NEW/ CCHEME)