

Code: AC71/AT71

Subject: UNIX SYSTEMS PROGRAMS

AMIETE – CS/IT

Time: 3 Hours

DECEMBER 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. Which function is called to open or create a file?

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|----------|------------|
| (A) make | (B) create |
| (C) open | (D) Get |

b. mkdir function returns the following value on error.

- | | |
|--------|----------------|
| (A) 0 | (B) 1 |
| (C) -1 | (D) error name |

c. The function used to return the position in bytes from the beginning of file is_____

- | | |
|-------------|-------------|
| (A) fseek | (B) fgetpos |
| (C) ftecell | (D) Fsetpos |

d. A new process is created in unix with a_____

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|-----------|----------|
| (A) Proc | (B) Fork |
| (C) Creat | (D) Run |

e. Is a process calls wait function, which may not happen

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|--|
| (A) Process may block, if all of its children are still running |
| (B) Process may return with termination status of child |
| (C) Process may return with an error, if it doesn't have any child processes |
| (D) All of these |

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- f. Which is the first function running in user space in UNIX?
- (A) Init (B) Fork
(C) Start (D) proc
- g. Which of the following file name is incorrect?
- (A) abc (B) abc123
(C) /abc (D) Unixfile
- h. A symbolic link points to
- (A) File directly (B) Inode of file
(C) Indirect pointer to file (D) Index of file
- i. Which of the following is invalid permission bit?
- (A) user-read (B) group-write
(C) team-execute (D) other-execute
- j. The interprocess communication between process running on different machines is done with.
- (A) Pipes (B) Queues
(C) Sockets (D) None of these

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

- Q.2** a. Explain architecture of UNIX operating system through a diagram. (8)
- b. Explain the different time values used in the UNIX System. (4)
- c. Explain the properties of `fcntl` function in detail. (4)
- Q.3** a. Describe the various types of files available in UNIX system. (6)
- b. What are file access permissions? List all commands to alter the file permissions. (6)
- c. What is the meaning of “symbolic link” in UNIX file system? (4)
- Q.4** a. Explain the different functions used in binary I/O and formatted I/O? (8)
- b. What is a shadow password file? Who has access to content of shadow password file? (8)

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- Q.5** a. Explain all variants of fork functions. (8)
b. Explain the working of wait function with the examples. (8)
- Q.6** a. Explain various methods of terminating a process in detail. (8)
b. Explain concept of process groups in detail. (8)
- Q.7** a. Explain the use and functioning of signal function in detail. (8)
b. What is a re-entrant function? Explain. (8)
- Q.8** a. Draw the diagram of BSD syslog facility. Explain the three ways to generate log messages. (8)
b. What is daemon? What are its characteristics? List some daemons on UNIX System? (8)
- Q.9** a. Explain implementation of Semaphores in UNIX and also explain the function calls associated with this IPC mechanism. (10)
b. Explain Message Queues with the data structure used in the queue implementation. (6)