

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

December, 2014

00666

**BICS-026 : UNIX INTERNALS AND SHELL
PROGRAMMING**

Time : 3 hours

Maximum Marks : 70

Note : *Attempt any **seven** questions. Each question carries equal marks.*

1. Sketch a diagram showing the components of UNIX operating system and discuss Kernel – Shell relationship. 10
2. Explain the role of file descriptors, file table and Inode table in UNIX file system. What are the different ways of setting file permission ? Explain. 6+4
3. What is file system ? Discuss the creation, mounting and unmounting of file system in UNIX. Discuss the usage of “at”, “batch” and “cron”. 2+4+4
4. Define a process. Differentiate between sequential and concurrent processes. List the advantages of concurrent execution of processes. 2+4+4

5. Define Zombie and Orphan processes. Explain process control in UNIX. 7+3
6. List the sequence of events that occur when one turns on the computer. Give the syntax and uses of the following utilities : 4+6
- (i) df
 - (ii) cat
 - (iii) mkfs
7. Discuss the utility of shell metacharacters using suitable examples. Write a shell script that takes the command line argument and report whether it is a directory or a file or something else. 5+5
8. Write the following shell scripts : 5+2+3
- (i) Write a shell script that accepts the file name on the command line if the file is readable, then counts the number of lines, words and characters in this file.
 - (ii) Write a shell script that tells you its name and its pid.
 - (iii) Write a shell script that takes user name as argument and sees whether the person is to login to the system or not.
9. Why do we use Sockets ? Discuss the following system calls of socket mechanism : 2+8
- (i) socket ()
 - (ii) bind ()
 - (iii) connect ()
 - (iv) accept ()

10. Write short notes on the following :

$4 \times 2 \frac{1}{2}$

- (i) Pipe
 - (ii) Message queue
 - (iii) Shared variable
 - (iv) Semaphores
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