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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fourth Semester, B.E. - Computer Science and Engineering

Semester End Examination; June - 2016

UNIX System Programming

Time: 3 hrs

Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

- 1 a. Discuss the salient features of UNIX operating system. 8
- b. Distinguish between internal and external commands in UNIX. Explain two of them each with example. 8
- c. List any four UNIX commands which we can use uniquely with regular files. 4
- 2 a. Explain how file permissions can be changed in absolute and relative manner. What are the default permission values for a directory and file? 10
- b. Explain the following UNIX commands with examples : 10
 - (i) *cp* (ii) *mkdir* (iii) *wc* (iv) *file* (v) *od*

UNIT - II

- 3 a. Interpret the significance of the seven fields of the *ls-l* output. 10
- b. Differentiate between Hard link and Symbolic link in UNIX. 4
- c. Write a UNIX command line to count the number of regular files that exist under the current directory. 6
- 4 a. Discuss the different options available in *sort* command with examples. 10
- b. Explain the following commands with examples : 10
 - (i) *ps* (ii) *cron* (iii) *cut* (iv) *tr*

UNIT - III

- 5 a. What is standard input, standard output and standard error? Explain with respect to UNIX. 10
- b. What are the shell variables that control the UNIX system? Explain any six of them. 10
- 6 a. Discuss the significance of the following shell parameters : 5

\$#, \$0, \$*, \$? and \$!
- b. Explain with examples, the use of test and [] to evaluate expressions in shell. 7
- c. What is for loop in a shell script? Explain the different ways of making the lists. 8

UNIT - IV

- 7 a. What is POSIX standard? Explain the different subsets of POSIX standard. Write the structure of the C program to filter out non-POSIX compliant codes from a user program. 10

- b. List the major differences between ANSI C and K & R 'C'. 5
- c. Why calling an API is more time consuming than calling a user defined function? 5
- 8 a. Explain how *fcntl* API is used in file and record locking. 10
- b. Explain the different symbolic link file APIs. Write a C/C++ program to emulate the UNIX *ln* command. 10

UNIT - V

- 9 a. Describe the UNIX Kernel support for a process. 10
- b. Write C programs to :
 - i) Output all its command - line arguments to standard output. 10
 - ii) Output contents of its environment list.
- 10a. Explain how UNIX operating system keeps process accounting. 10
- b. What is Job control? Summarize the job control features with the help of a figure. 10

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