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

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Information Science and Engineering
Semester End Examination; Dec - 2016/Jan - 2017
UNIX System and Network Programming

Time: 3 hrs *Max. Marks: 100*

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

UNIT - I

1 a. What are the major differences between ANSI C and K and R 'C'? Explain each with example. 8

b. Write a C/C++ POSIX complaint program that prints the POSIX defined configuration options supported on any given system using feature test macros. 6

c. What are the API common characteristics? List any five values of the global variable *errno* along with their meanings whenever API's fail. 6

2 a. What are different file types available in POSIX? Explain different commands used to create each type with their argument values and mention its uses. 10

b. Explain the UNIX Kernel support for files, with a neat diagram. 10

UNIT - II

3 a. What is the importance of locking files? How *fcntl* API is used for file and record locking? Explain with function prototype and argument values. 10

b. With the help of prototype, explain the following API's,
i) *create* ii) *lseek*
iii) *access* iv) *link* v) *utime*. 10

4 a. What are the different ways for a process to terminate? Explain *exit( )*, *-exit( )*, *at_exit( )* functions with its prototype. 8

b. Explain the memory layout of a C program with a neat diagram. 7

c. What do you mean by command line argument? Explain with an example. 5

UNIT - III

5 a. What is *fork* and *vfork*? Explain with an example for each. 10

b. What is Race condition? Give an example to it. Write a program to demonstrate Race condition. 10

6 a. What is controlling terminal? Explain its characteristics and relation to session and process groups. 10

b. Explain in detail, the Terminal login and Network login. 10

UNIT - IV

7 a. What is a signal? Explain with a program, how to setup a signal handler. 10

b. Explain a UNIX Kernel support for signals, with a neat diagram. 10

8 a. Discuss Daemon characteristics and coding rules with examples. 10

   b. With a neat diagram, explain the method of error logging. 10

UNIT - V

9 a. What is FIFO? Explain Client-Server communication using FIFO. 10

   b. Explain *popen* and *pclose* functions with prototypes and write a program to demonstrate *popen* and *pclose* functions. 10

10 a. Explain socket addressing, socket creation, connection establishment and data transfer with appropriate API's. 10

   b. Discuss the different functions available for transmitting and receiving data over a socket. 10

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