



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

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| 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 <i>errno</i> 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

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| 3 a. | What is the importance of locking files? How <i>fcntl</i> 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) <i>create</i> ii) <i>lseek</i> | 10 |
| | iii) <i>access</i> iv) <i>link</i> v) <i>utime</i> . | |
| 4 a. | What are the different ways for a process to terminate? Explain <i>exit()</i> , <i>-exit()</i> , <i>at_exit()</i> 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

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| 5 a. | What is <i>fork</i> and <i>vfork</i> ? 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

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| 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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