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Sixth Semester B.E. Degree Examination, June/July 2016
UNIX Systems Programming

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Compare and explain : ANSI C and K and R C with examples. (08 Marks)
 b. List and explain feature test macros in POSIX systems. (08 Marks)
 c. Compare : execution of an API with execution of C library function. Also list any four error status codes with their meaning. (04 Marks)
- 2 a. What is file? Explain types of files with command examples. (06 Marks)
 b. Explain UNIX Kernel support for files with a neat sketch. (08 Marks)
 c. Write any three differences between :
 i) Hard links and soft links ii) C steam pointer and file descriptor. (06 Marks)
- 3 a. Explain file and record locking with C/C++ program. (08 Marks)
 b. Explain the following API's with their prototypes. :
 i) open ii) read iii) write iv) close. (08 Marks)
 c. Write a C/C++ program to rename a file [use mv command /link and unlink APIs].(04 Marks)
- 4 a. With a neat diagram, explain about termination ways for a process. Also write a C/C++ programs to display :
 i) Command line arguments ii) Environment variables. (10 Marks)
 b. Explain setjmp and longjmp functions with their prototypes. (06 Marks)
 c. With neat sketch, explain memory structure/ layout of a C/C++ program that is to be executed. (04 Marks)

PART – B

- 5 a. What is race condition? Mention and explain routines to avoid race condition. (06 Marks)
 b. Explain the following :
 i) orphaned process ii) zombie process iii) terminal login iv) network login. (10 Marks)
 c. Explain : i) process group ii) session. (04 Marks)
- 6 a. What is daemon? Explain characteristics and coding rules. (10 Marks)
 b. Write a C/C++ program to show the use of alarm API. (06 Marks)
 c. Define and explain : i) SIGCHLD signal ii) waitpid function. (04 Marks)
- 7 a. What is inter-process communication? List any 4 mechanisms (IPC). Also write a C/C++ program that creates a child process to print a message. (08 Marks)
 b. Write a C/C++ program(s) to implement inter-process communication using FIFO file. (06 Marks)
 c. Explain briefly with examples : i) Message queues ii) semaphores. (06 Marks)
- 8 a. Explain shared memory as an inter-process mechanism (IPC). (08 Marks)
 b. What are steam pipes? Explain passing of file descriptors. (06 Marks)
 c. Briefly explain client-server functions. (06 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2016
Computer Graphics & Visualization

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. With neat diagrams, explain different graphics architectures. (13 Marks)
- b. With a neat diagram, explain the elements of a computer graphics system. (07 Marks)
- 2 a. Explain two forms of text. Mention GLUT library functions for each of the form. (06 Marks)
- b. Explain seven major groups of OpenGL graphics functions. (07 Marks)
- c. Explain index color model. How it is supported in GLUT library. (07 Marks)
- 3 a. What are the major characteristics that describe the logical behaviour of an input device? Explain how OpenGL provides the functionality of each of the classes of logical input devices. (08 Marks)
- b. What is double buffering? How it is implemented in OpenGL? (05 Marks)
- c. What is display list? Write OpenGL code segment that generate a blue colored square using display list. (07 Marks)
- 4 a. Explain different frames in OpenGL. (08 Marks)
- b. With the help of code segments, explain the modeling of colored cube and also explain bilinear interpolation. (12 Marks)

PART – B

- 5 a. Explain translation, scaling and rotation in a homogeneous coordinate system. (10 Marks)
- b. What is concatenation of transformation? Derive concatenated final matrix M for rotating a 3D object about a fixed point. (10 Marks)
- 6 a. With neat diagram explain the following projections in OpenGL along with APIs provided i) perspective ii) Parallel. (10 Marks)
- b. Explain different classical viewings (10 Marks)
- 7 a. Briefly explain the different classification of light and material interaction. How material properties are specified in OpenGL? (10 Marks)
- b. What are the different types of light sources? Explain. (10 Marks)
- 8 a. What are the basic implementation strategies? Explain. (10 Marks)
- b. What is clipper? Briefly explain Cohen Sutherland line clipping without code. Discuss four cases. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.