

## Department of Computer Science & Engineering

**Subject Code:**        **CSL66**

**TERM: Jan-May 2023**

**Subject Name:**        **Unix System  
Programming &  
Compiler Design  
Laboratory**

**Faculty In-charge:**        **CDS/CP**

**Credits:**                **0:0:1**

**Semester :**                **VI**

### Part-A Unix System Programming

Sl. No.	Problem Statements	CO	PO
1. <span style="color: blue;">usp prev</span>	Write a C program to create a child process and show how parent and child processes will share the text file and justify that both parent and child shares the same file offset.	CO3	1,2 & 4 <span style="color: blue;">wait(&amp;status);</span>
2.	Write a C program which takes file descriptor as an argument and prints the description of selected file flags for that descriptor.	CO3	1,2 & 4
3. <span style="color: blue;">usp prev</span>	Write a C program to simulate system function. <span style="color: blue;">waitpid(pid,&amp;status,0)</span>	CO3	1,2 & 4
4. <span style="color: blue;">X</span>	Write a C program to a. To create a child process. b. Child should execute an interpreter file by passing few arguments and some environment variables. c. Parent should execute an interpreter file by passing few arguments d. Create an interpreter file which has the path of echoall.c file e. Create echoall.c file which prints the arguments and environment variables received through parent and child process	CO3	1,2 & 4
5.	Write a program to Copy access and modification time of a file to another file using utime function.	CO3	1,2 & 4
6.	Consider the last 100 bytes as a region. Write a C program to check whether the region is locked or not. If the region is locked, print pid of the process which has locked. If the region is not locked, lock the region with an exclusive lock, read the last 50 bytes and unlock the region.	CO3	1,2 & 4
7.	Write a C program to illustrate effect of setjmp and longjmp functions on register and volatile variables.	CO3	1,2 & 4
8.	Write a C program to perform the following operations a. To create a child process <span style="color: blue;">waitpid(pid, &amp;status, 0);</span> b. Child process should execute a program to show the use of the access function c. Parent process should wait for the child process to exit d. Also print the necessary process IDs	CO3	1,2 & 4
9.	Write a C program to avoid zombie status of a process. <span style="color: blue;">(waitpid (pid, NULL, 0) != pid</span>	CO3	1,2 & 4

10.	Write a C program such that it initializes itself as a daemon Process.	CO3	1,2 & 4
11.	Write a C program a. to read first 20 characters from a file b. seek to 10th byte from the beginning and display 20 characters from there c. seek 10 bytes ahead from the current file offset and display 20 characters d. display the file size	CO3	1,2 & 4
12.	Programs to demonstrate usage of umask and chmod functions.	CO3	1,2 & 4

### Part B - Compiler Design

Sl. No.	Questions	CO	PO
1.	Write a Lex program to accept a C program and do error detection & correction for the following. a) Check for un-terminated string constant in the input C program b) Intimate the error line numbers and the corrective actions to the user.	CO1	1,2 & 4
2.	Write a Lex program to Check for valid arithmetic expressions in the input C program. Report the errors in the statements to the user.	CO1	1,2 & 4
3.	Write a Lex program to accept a C program and do the following error detection & correction. a) Check for the valid usages of numerical constants in the input C program. b) Intimate the invalid usages to the user.	CO1	1,2 & 4
4.	Write a Lex program to accept a C program and do the following error detection & correction. a) Check for valid declarative statements in your program. b) Intimate the invalid statements along with their line numbers to users.	CO1	1,2 & 4
5.	Write a Lex program to accept a C program and do the following error detection & correction. a) Check for the valid if statement in the input C program. b) Report the errors to users.	CO1	1,2 & 4
6.	Write a Lex program to accept a C program and do the following error detection & correction. a) Check for un-terminated multi-line comment statements in your C program. b) Report the errors to users.	CO1	1,2 & 4
7.	Write the Yacc program to accept a statement and do the following error detection. a) Check for valid arithmetic expressions in the input C statement. b) Report the errors in the statements to the user. c) Evaluate the arithmetic expression.	CO2	1,2 & 4

8.	Write the Yacc program to accept a statement and do the following error detection. a) Check for the valid relational expression b) Evaluate the relational expression	CO2	1,2 & 4
9.	Write the Yacc program to accept a statement and do the following error detection. a) Check for the valid logical expression b) Evaluate the logical expression	CO2	1,2 & 4
10.	Write Yacc programs for the following grammar. a) Test the executable code of Yacc program by giving valid and invalid strings as input. Grammar: S->SS+   SS*a	CO2	1,2 & 4
11.	Write Yacc programs for the following grammar. a) Test the executable code of Yacc program by giving valid and invalid strings as input. Grammar: S->L=R   R L->*R   id R->L	CO2	1,2 & 4
12.	Write Yacc programs for the following grammar. a) Test the executable code of Yacc program by giving valid and invalid strings as input. Grammar: D->TL T->int   float L->L,id   id	CO2	1,2 & 4

### Marks Distribution

Conduction and Result	Write-up	Execution	Viva	Change of Program
Part A	4M	17M	7M	-2
Part B	4M	18M		-3

Reviewed By: DSJ

Sd/-  
HOD, Dept. of CSE