5)

Aim: To experiment system calls using fork(), execlp() and pid() functions.

Program code:

```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>

int main() {
    pid_t pid;

    pid = fork();
    printf("THIS LINE EXECUTED TWICE\n");

    if (pid == -1) {
        printf("CHILD PROCESS NOT CREATED\n");
        exit(0);
    }

    if (pid == 0) {
        printf("Child Process:\n");
        printf("Process ID: %d\n", getpid());
        printf("Parent Process ID: %d\n", getppid());
        printf("Executing 'ls -l' in child process using execlp:\n");
        execlp("ls", "ls", "-l", NULL);

        perror("execlp failed");
        exit(1);
    }

    if (pid > 0) {
        printf("Parent Process:\n");
        printf("Process ID: %d\n", getpid());
        printf("Parent's Parent Process ID: %d\n", getppid());
    }

    printf("IT CAN BE EXECUTED TWICE\n");

    return 0;
}
```

Output:

```
THIS LINE EXECUTED TWICE
Parent Process:
Process ID: 1841
THIS LINE EXECUTED TWICE
Child Process:
Parent's Parent Process ID: 379
IT CAN BE EXECUTED TWICE
Process ID: 1842
Parent Process ID: 1841
Executing 'ls -l' in child process using execlp:
haresh@haresh:~$ total 40
rw-r--r-- 1 haresh haresh    247 Apr  9 15:27 emp.awk
rw-r--r-- 1 haresh haresh     62 Apr  9 15:26 emp.dat
rw-r--r-- 1 haresh haresh    189 Apr  9 15:21 fibonacci.sh
rwxr-xr-x 1 haresh haresh 16264 Apr  9 15:34 fork_example
rw-r--r-- 1 haresh haresh    821 Apr  9 15:33 fork_example.c
rw-r--r-- 1 haresh haresh    344 Apr  9 15:33 mark.awk
rw-r--r-- 1 haresh haresh    101 Apr  9 15:29 mark.dat
```