2. UNIX exec can return an error in many cases. If the executable does not exist, UNIX exec will return an error. Executable exists but it does not have enough permissions to run. Executable exists and has all permissions, but the system has not enough resources to run the executable currently.

10.

For program 1:

The output should be 6 ‘\n’ 6, the program will run twice, because there are two processes running this program: parent process and child process. Either the child process or parent process runs first, and they have the copy of the program separately, so the val = 5, val++, print(val) will be executed twice. Therefore, the output will be 6 ‘\n’ 6.

For program 2:

The output should be 6. For the parent process, it will wait for the child process to be finished. Then the child process executes the program, val =5, val++, print(val). After that the child process returns the pid to parent process then terminated.