

1)

Software engineering describes the entire process of the creation of a program, including planning, actual programming and maintaining the program.

2)

a) Editors allow programmers/software engineers to edit code in a program, often in IDE's editors will provide things such as color coding, auto-complete etc. to ease the process of programming.

b/c) compilers/interpreters convert a program in high level language into machine code/assembly, allowing it to be executed by the CPU. Compilers do this all at once before executing the program, whilst interpreters do it line by line. Interpreters are faster for testing but are significantly slower for repeated usage as compilers don't need to recompile if there is no change.

d) A linkage editor is a type of software often included in IDE's that combines multiple previously compiled sections of a program into the one being executed currently

e) A loader takes code/files (sometimes from a linker) and then loads the resulting exe into memory and initializes the CPU's processing of those instructions

f) Debuggers often contain things such as trace facilities, the ability to use breakpoints, store dumps etc. They are used to improve efficiency and ease of solving problems in a program.

3)

a) Trace facilities in an IDE allow the programmer/software engineer to view the values of variables and to see other information as the program runs, this can allow for faster error diagnosis and more efficient programming.

b) breakpoints in a program pause the program at a specific step/line, this enables the programmer/software engineer to see what is happening at any stage of an algorithm often breakpoints will be used in conjunction with trace facilities to debug logic errors.

c) a store dump gives a programmer the contents of memory at the time of the store dump, this can allow them to debug more complex issues that may bypass other more conventional means.

d) error diagnostics are provided by an IDE to aid the programmer/software engineer in the debugging of a program, providing information, such as the location of an error or the type of error.