



4.6.2 Classification of Programming Languages

- 1) Discuss the advantages and disadvantages of programming using a high-level language compared to programming using assembly language.

[4 marks]

Advantages (MAX 2 marks)

- Program code is easier to understand/maintain/debug
- Faster development time // one line of HLL code can do the same job as many lines of assembly
- Programs are more portable
- Availability of flow control structures (loops, selection)
- Improved feature for modularity (subroutines)
- Have built-in data structures
- Support for different paradigms

Disadvantages (MAX 2 marks)

- Assembly language code may execute more quickly
 - Assembly language code may use less memory
 - Assembly language gives direct/better access to computer hardware // enables direct manipulation of memory
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2) Some high-level languages are described as being imperative.

a) Explain what imperative means in this context.

[2 marks]

- Program is a sequence of instructions that are followed in order
- Instructions describe how to carry out a task // each instruction is a step
- Instructions can change the state of the program

b) Explain the advantages and disadvantages of programming using imperative high-level languages compared with low-level languages..

[4 marks]

- Programs written in a high-level language are machine independent / portable
 - People find it easier to debug high-level language programs
 - People find it easier to read/write/understand high-level language program code
 - High-level languages save time for programmers as they use fewer lines of program code
 - Programs written in a high-level language may not make best use of specific features of a particular processor
 - Programs written in a high-level language may not execute as quickly
 - Some programs cannot be (easily) written using a high-level language – particularly some parts of a computer's operating system
 - Programs written in a high-level language may use more memory
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