

3 A programmer uses assembly language to create a program for a coffee machine.

(a) Describe what is meant by assembly language.

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..... [2]

(b) Identify the translator needed for assembly language.

..... [1]

(c) Tick (✓) **one** box to show which statement is an advantage of using assembly language.

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|----------|--------------------------------|--------------------------|
| A | It is close to human language. | ☐ |
| B | It is memory efficient. | ☐ |
| C | It is easy to debug. | ☐ |
| D | It is machine independent. | ☐ |

[1]

7 Programs can be written in a high-level language or a low-level language.

(a) Machine code is one type of low-level language.

Identify **one** other type of low-level language.

Identify the translator that is needed for the type of low-level language you have identified.

Type of low-level language

Translator

[2]

(b) A high-level language can be translated into a low-level language, using a compiler or an interpreter.

Describe the advantages of using an interpreter instead of a compiler during software development.

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..... [4]

(c) Integrated development environments (IDEs) provide translators.

Identify **three** other common functions of an IDE.

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..... [3]

6 A computer programmer uses assembly language to create a computer program for an embedded system in a washing machine.

(a) State what is meant by an embedded system.

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 [1]

(b) Give the name of the translator that will be used for the program.

..... [1]

(c) The washing machine needs to display error codes on a small screen if there is a problem with the washing machine.

The error codes are stored as binary. The binary numbers are too long to be displayed on the washing machine.

State how the error codes could be reduced in length to be displayed on the screen.

..... [1]

(d) Give **one** benefit to the programmer of using assembly language to write the program.

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 [1]

(e) The programmer uses an integrated development environment (IDE) to write the program.

A built-in translator to convert the program into machine code is one way that the IDE helps the computer programmer.

Describe **three** other ways the IDE can help the programmer.

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 [6]

7 A computer programmer uses an integrated development environment (IDE) when creating a computer program.

Explain the purpose of the IDE.

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 [4]

7 A programmer uses a low-level language to write a computer program for a vending machine.

(a) Describe what is meant by a low-level language.

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..... [2]

(b) Give **two** reasons why the programmer would choose to write the computer program in a low-level language instead of a high-level language.

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..... [2]

5 A programmer writes a computer program using a high-level language.

(a) Tick (✓) **one** box to show which statement is correct about writing computer programs in a high-level language.

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|---|--------------------------|
| A Mnemonics are used to create instructions. | ☐ |
| B The computer program is harder to debug than a low-level language program. | ☐ |
| C The computer program is machine independent. | ☐ |
| D The hardware of the computer can be directly manipulated. | ☐ |

[1]

(b) The programmer uses a compiler to translate the computer program.

(i) Describe how the compiler translates the computer program.

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(ii) Describe how the compiler reports errors.

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(c) The programmer uses an integrated development environment (IDE) to create the computer program.

One function of the IDE is that it has the built-in compiler.

Give **three** other common functions of an IDE.

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[3]