

AQA Computer Science A-Level
**4.6.2 Classification of programming
languages**
Past Paper Questions

January 2009 Comp 2

- 3 (a) The high-level language statement

A := B + 5

is to be written in assembly language.

Complete the following assembly language statements, which are to be the equivalent of the above high level language statement. The `Load` and `Store` instructions imply the use of the accumulator register.

Load

..... #5

Store

(3 marks)

January 2012 Comp 2

- 1 **Figure 1** below shows program code developed using different generations of programming languages.

Figure 1

Program 1 (with comments)

```
//Calculate  
FirstVar := 47;  
SecondVar := FirstVar + 2;  
FourthVar := ThirdVar;
```

Program 2 (with comments)

```
AB2F ; Load value 2F into accumulator  
BC5D ; Store contents of accumulator at address 5D  
E402 ; Add value 2 to accumulator  
BCFF ; Store contents of accumulator at address FF  
AC61 ; Load accumulator with contents of address 61  
BC4A ; Store contents of accumulator at address 4A
```

- 1 (a) What generation of programming language was used to write **Program 1**?

.....
(1 mark)

1 (b) Machine code can be represented in different numeric formats.

1 (b) (i) Which numeric format is used by the machine code program in **Program 2**?

.....
(1 mark)

1 (b) (ii) State **one** reason for using this format.

.....
(1 mark)

1 (b) (iii) The machine for which **Program 2** has been written has limited addressing capability.

What are the lowest and highest memory addresses that can be addressed by this machine?

Lowest address:

Highest address:

(1 mark)

1 (c) Give an example of a situation for which it would be appropriate to write a program in a low level language (ie machine code or assembly language).

.....
.....
(1 mark)

January 2013 Comp 2

3 When writing a program, a programmer could use an assembly language, a high level imperative language or a high level declarative language.

Outline the major differences in each of these **three** approaches. For each language type, your answer could include:

- advantages and disadvantages compared to other language types
- how the programmer would express their programs
- what translation software could be used, if applicable
- a situation where it might be the most appropriate choice.

In your answer you will be assessed on your ability to use good English and to organise your answer clearly in complete sentences, using specialist vocabulary where appropriate.

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(8 marks)

June 2010 Comp 2

- 7 (d) (ii) Most computer programs are initially written in an imperative high level language rather than assembly language.

Explain why this is the case.

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(3 marks)

June 2011 Comp 2

4 **Figure 2** and **Figure 3** show different versions of the same program.

Figure 2			Figure 3		
(x)	(y)	(z)	(x)	(y)	(z)
200	LOAD	7	200	01010110	00000111
201	ADD	3	201	11010000	00000011
202	ADD	6	202	11010000	00000110
203	STORE	255	203	11110000	11111111

4 (a) What generation of programming language is shown in **Figure 2**?

.....
(1 mark)

4 (b) In both figures there is a column labelled **(x)**.

What would be a suitable heading for this column?

.....
(1 mark)

4 (c) In both figures the instruction is split into two parts.

What are the names of the instruction parts in columns **(y)** and **(z)**?

(y).....

(z).....

(2 marks)

4 (d) What is the relationship between the instructions in **Figure 2** and **Figure 3**?

.....

.....
(1 mark)

June 2012 Comp 2

2 (b) State **two** advantages of writing a program in assembly language over writing a program in machine code.

Advantage 1:.....
.....

Advantage 2:.....
.....

(2 marks)

4 (b) Give **one** reason for there being so many High Level programming languages.

.....
.....
.....
.....

(1 mark)

June 2016 AS Paper 2

0 4 . **1** Assembly language is considered to be a low-level language. Which other type of language is also considered to be a low-level language?

[1 mark]

June 2017 AS Paper 2

0 4 . 2

A company is using a newly-developed processor in its latest microwave oven. A software developer is writing the program to control the oven.

The developer chose to use **assembly language** rather than a high-level language to write the program.

Explain why the developer may have made this decision.

[3 marks]

Specimen AS Paper 2

0 6 . 3 Explain the term low-level language.

[1 mark]
