MODULE P LANGUAGES AND IDES · P1

High-level and low-level languages

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 2.5.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 3 marks

Three extracts of program code, **A**, **B** and **C**, are shown.

Extract A

```
total = price * quantity
if total > 100 then
    print("Free delivery")
endif
```

Extract B

```
LOAD  30
ADD   31
STORE 32
JUMP  14
```

Extract C

```
00011110
01011111
00100000
10001110
```

(a) Identify the extract that is written in a high-level language. **[1]**

(b) Identify the extract that the CPU can execute **without** it being translated first. **[1]**

(c) State what is meant by a **low-level** language. **[1]**

2 **Total: 4 marks**

(a) Tick (✓) **one** box in each row to show whether each statement is true or false. If a statement is false, rewrite it so that it is true. **[4]**

Statement	True	False	Rewritten statement (if false)
Each statement in a high-level language is translated into exactly one machine code instruction.			
Machine code and assembly language are both low-level languages.			
A program written in a low-level language for one type of processor will run on any other type of processor.			
Code written in a high-level language is closer to the CPU's own instructions than code written in a low-level language.			

3 **Total: 6 marks**

A farming company makes small battery-powered sensors that are pushed into the soil in its fields. Each sensor has a simple processor and only a few kilobytes of memory. Every ten minutes the sensor measures how wet the soil is and sends the reading by radio to a base station. The part of the program that reads the measurement and switches the radio on and off is written in a low-level language.

(a) Explain **two** reasons why this part of the program is written in a low-level language. **[4]**

(b) Describe **one** drawback to the company's programmers of writing this part of the program in a low-level language. **[2]**

4 **Total: 5 marks**

A travel company is writing an app that customers use to book hotel rooms. The app will run on smartphones, tablets and laptops. These devices use different types of processor. The programmers write the app in a high-level language.

(a) Explain why writing the app in a high-level language means it can be used on all of these devices. **[2]**

(b) Give **two other** benefits to the programmers of writing the app in a high-level language. **[2]**

1

2

(c) State **one** drawback of using a high-level language instead of a low-level language. **[1]**

5 **Total: 2 marks**

A programmer tests a long program and finds that it gives the wrong result.

(a) Explain why the error would usually be easier to find and fix if the program was written in a high-level language rather than a low-level language. **[2]**

Total for this worksheet: 20 marks