MODULE P LANGUAGES AND IDES · P3

Translators: compilers and interpreters

Original practice questions · 21 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 **21 marks**. All organisations and programs on this sheet are made up.

1

Total: 3 marks

(a) State the purpose of a translator. **[1]**

(b) A programmer writes a program in a high-level language. Explain why the program needs a translator before the CPU can execute it. **[2]**

2

Total: 5 marks

(a) Tick (✓) **one** box in each row to show whether each statement describes a compiler, an interpreter, or both. **[5]**

Statement	Compiler	Interpreter	Both
Translates the whole program before any of it is run			
Must be on the computer every time the program is run			
Converts source code written in a high-level language into machine code			
Produces a file that can be run without the original source code			
Runs each line straight after translating it			

3 **Total: 5 marks**

A company makes ticket machines for railway stations. Its programmers have finished writing the program that runs on the machines. The program will be copied onto 400 machines. The company does not want other businesses to see or copy its source code.

(a) Identify the type of translator the company should use to translate the finished program. Justify your choice. **[3]**

Translator:

Justification:

(b) The company uses a compiler. A few months later, a programmer changes one line of the source code to fix a fault. **[2]**

Describe what must happen before the corrected program can run on the ticket machines.

4 **Total: 6 marks**

A warehouse manager has written this program to help with stock checks. The program contains **two** errors: on line 03, `print` is misspelt as `prnit`, and on line 06, the variable `total` is misspelt as `totl`.

```
01 print("Stock check started")
02 boxes = int(input("Enter number of boxes"))
03 prnit("Boxes entered: " + str(boxes))
04 shelf = input("Enter shelf code")
05 total = boxes * 12
06 print("Items on shelf " + shelf + ": " + str(totl))
```

(a) The manager runs the program using an **interpreter**. Describe what happens. **[3]**

(b) The manager instead translates the program using a **compiler**. Describe what happens. **[3]**

5 **Total: 2 marks**

A program run by an interpreter usually runs more slowly than the same program after it has been compiled.

(a) Explain why. **[2]**

Total for this worksheet: 21 marks