MODULE P LANGUAGES AND IDES · P4

IDE tools and how they help a programmer

Original practice questions · 21 marks · ~25 minutes · Cambridge 0478 syllabus 4.2.5

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**.

A programmer at a city museum is writing a program that counts the visitors to each of the museum's six galleries. The program is written in a high-level language using an integrated development environment (IDE). All the questions on this worksheet are about this program.

1

Total: 1 mark

(a) Tick (✓) **one** box to show which statement describes an IDE. **[1]**

A translator that converts the whole program into an executable file	
Software that provides the functions needed to write, translate, run and test program code in one program	
System software that manages the memory and hardware of the computer	
A low-level language that uses mnemonics in place of binary	

2 **Total: 5 marks**

The list shows seven common functions of an IDE.

auto-completion | auto-correction | code editor | error diagnostics | prettyprint | run-time environment | translator

(a) Complete the table by writing the IDE function from the list that matches each description. Each function is used once at most. Not all functions are needed. **[5]**

Description	IDE function
The programmer types `REP` and the IDE offers `REPEAT` so the keyword can be finished with one key press	
The programmer types `OUPTUT` and the IDE changes it to `OUTPUT`	
The code is displayed with keywords, identifiers and strings in different colours and with consistent indentation	
The high-level code is converted into machine code so that it can be executed	
The program is run inside the IDE and its outputs are shown so the programmer can test it	

3 **Total: 5 marks**

The screenshot shows part of the program in the IDE. The code is shown in pseudocode. When the programmer tries to run it, the message at the bottom appears.

IDE – GalleryCount

```
01  Total ← 0
02  FOR Gallery ← 1 TO 6
03      OUTPUT "Visitors in gallery , Gallery
04      INPUT Visitors
05      Total ← Total + Visitors
06  NEXT Gallery
07  OUTPUT "Total visitors today: ", Total
```

Messages

⚠ Line 03: syntax error – string is not closed (closing " missing)

(a) Identify the IDE function that displayed the message. **[1]**

(b) Describe how this function helps the programmer to correct the program. **[2]**

(c) Explain how prettyprint can help the programmer to spot the error on line 03 while typing the code. **[2]**

4 **Total: 4 marks**

(a) Explain why the IDE provides a translator. **[2]**

(b) The programmer corrects line 03. Describe how the run-time environment helps the programmer to test the visitor-counting program. **[2]**

5 **Total: 6 marks**

Another programmer at the museum writes code in a plain text editor that has no extra functions. He then uses a separate translator program to translate it and run it.

(a) Explain how using an IDE instead would help him to write and test his programs. Refer to **three** different functions of an IDE in your answer. **[6]**

Total for this worksheet: 21 marks