GCST

2.5
PROGRAMMING LANGUAGES AND IDES
TOPIC WISE EXAM QUESTIONS

GCSE OCR

2.5.1 Languages

☐ Characteristics and purpose of different levels of programming language:
- o High-level languages
- o Low-level languages

☐ The purpose of translators

☐ The characteristics of a compiler and an interpreter

Required

✓ The differences between high- and low-level programming languages

✓ The need for translators

✓ The differences, benefits and drawbacks of using a compiler or an interpreter

Not required

✗ Understanding of assemblers

2.5.2 The Integrated Development Environment (IDE)

☐ Common tools and facilities available in an Integrated Development Environment (IDE):
- o Editors
- o Error diagnostics
- o Run-time environment
- o Translators

Required

✓ Knowledge of the tools that an IDE provides

✓ How each of the tools and facilities listed can be used to help a programmer develop a program

✓ Practical experience of using a range of these tools within at least one IDE

(a) The table contains four statements about programming languages.

Tick (✓) **one** box in each row to identify whether each statement describes a low-level programming language or a high-level programming language.

Statement	Low-level	High-level
The same language can be used on computers that use different hardware		
It allows the user to directly manipulate memory		
It allows the user to write English-like words		
It always needs to be translated into object code or machine code		

[4]

Complete the table by identifying **and** describing **two** features of an IDE that can be used when testing a program.

Feature	Description

[4]

(ii) Complete the description of programming languages and translators by writing the correct term from the box in each space.

continues	crashes	debugging	error	executable
high-level	interpreter	language	low-level	many
no	one	stops	with	without

Jack writes his program in a .... language. This needs to be translated into assembly or machine code before it can be executed. This is done using a translator.

One type of translator is an interpreter. This converts one line of code and then executes it, before moving to the next line. It .... when an error is found, and when corrected continues running from the same position. This translator is helpful when debugging code.

A second type of translator is a compiler. This converts all of the code and produces an error report. The code will not run until there are .... errors. The .... file produced can be run .... the compiler.

[5]

5   A computer game is written in a high-level programming language.

(a) State why the computer needs to translate the code before it is executed.

.... [1]

(b) Either a compiler or an interpreter can translate the code.

Describe **two** differences between how a compiler and an interpreter would translate the code.

1 ....

....

....

....

2 ....

....

....

....

[4]

(e) An Integrated Development Environment (IDE) is used to write the program.

Identify **two** features of an IDE that might be used when writing the program.

1 ....

....

2 ....

....

[2]

(b) Computers make use of electronic switches called transistors.

Describe how transistors can be used to store a value in binary.

....

....

....

.... [2]

2 Dru writes the following program using a high-level language.

```
01  function newscore(a,b)
02        temp = a*b
03        temp = temp + 1
04        return temp
05  endfunction
06  score = 18
07  name = "Dru"
08  print (score)
09  print ("name")
10  print (newscore(score,2))
11  print (score)
```

(b) Describe the advantages of writing the program in a high-level language instead of in assembly language.

....

....

....

.... **[2]**

(c) Give **two** reasons why computer scientists use hexadecimal to represent numbers instead of binary.

1 ....

....

2 ....

....
[2]

The algorithm is written in a high-level language. The high level code must be translated into machine code before a computer processor can execute it.

(c) Describe **two** methods of translating high level code into machine code.

1 ....

....

....

....

....

....

2 ....

....

....

....

....

.... [4]

(ii) Describe what is meant by a "high level language".

....

....

.... **[2]**

(b) Victoria creates her program using an Integrated Development Environment (IDE).

Describe two tools or facilities that an IDE commonly provides.

....

....

....

....

....

.... **[4]**

Joseph is using an Integrated Development Environment (IDE) to produce the program.

(f) One tool in an IDE that Joseph uses is a translator.

Describe **two** additional tools in an IDE that Joseph could use to help him produce his program.

Tool 1 name: ....

Tool 1 description: ....

....

Tool 2 name: ....

Tool 2 description: ....

....

[4]

(g) Joseph's IDE allows him to use both a compiler and an interpreter.

Describe how Joseph could make use of a compiler and an interpreter when producing his program.

Compiler: ....

....

....

....

Interpreter: ....

....

....

....

[4]

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Graeme is a freelance programmer. He has written a program for a client and gives the client both the high level code and the machine code of the program.

(a) (i) Describe what is meant by

High level code

....

....

....

....

....

....

Machine code

....

....

....

....

....

[4]

(ii) State why Graeme needs a compiler.

....

....

....

.... **[1]**

If you found this useful, drop a follow to help me out!

THANK YOU!

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