Revision Sheet

IGCSE Computer Science · Unit 7 Algorithm design and problem-solving

13 vocabulary items · 29 marks of exam questions (14 questions)

Part 1 · Vocabulary review (13 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

5. _____ [1]

6. _____ [1]

7. _____ [1]

8. _____ [1]

9. _____ [1]

10. _____ [1]

11. _____ [1]

12. _____ [1]

13. _____ [1]

Part 2 · Exam questions (29 marks, 14 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

14 Tick (✓) **one** box to complete the description of abstraction.

Abstraction is part of the analysis stage of the development life cycle. Abstraction means

A testing the solution to the problem. ☐

B writing a program using program code. ☐

C defining the sub-systems that make up the problem. ☐

D removing details from the problem that are not relevant. ☐

[1]

15 Tick (✓) **one** box to complete this sentence.

A standard method of solution used to find a piece of data in an array is a

A bubble sort. ☐

B counting routine. ☐

C linear search. ☐

D selection search. ☐

[1]

16 Tick (✓) **one** box to show which check is used for verification when data is input.

A length check ☐

B range check ☐

C type check ☐

D visual check ☐

[1]

17 Tick (✓) **one** box to complete this sentence.

A solution to a problem may be represented using pseudocode, flowcharts or

A procedures. ☐

B processes. ☐

C structure diagrams. ☐

D sub-systems. ☐

[1]

18 Tick (✓) **one** box to complete this sentence.

A validation check to make sure that an email address contains an '@' sign is a

A range check. ☐

B visual check. ☐

C presence check. ☐

D format check. ☐

[1]

19 Tick (✓) **one** box to identify a method used to design and construct a solution to a computing problem.

A analysis ☐

B coding ☐

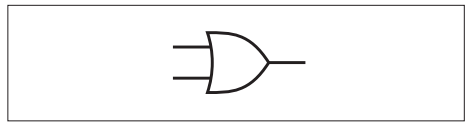
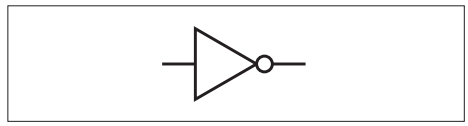
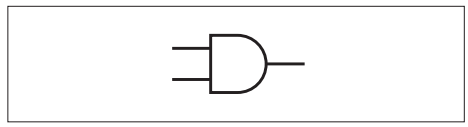
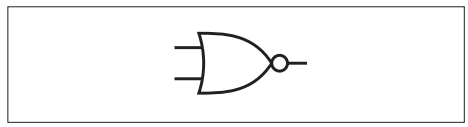
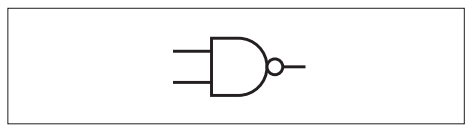
C flowchart ☐

D testing ☐

[1]

20 **Four** logic gates and **five** standard symbols for logic gates are shown.

Draw **one** line to link each logic gate to its standard symbol. **Not** all standard symbols will be used.

Logic gate	Standard symbol
AND	
OR	
NAND	
NOT	
	

[4]

21 Outline **one** type of verification check that could be used when inputting data.

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..... [2]

22 A fence measuring 2 metres in height and 20 metres in length needs painting. The area of the fence needs to be calculated so that enough paint for the job is purchased.

After the task is decomposed, there are three component parts: input, process and output.

Three component parts and **four** example descriptions are shown.

Draw **one** line from each component part to the most appropriate relevant description.
Not all descriptions will be used.

Component part	Description
process	the height of the fence the length of the fence
output	The amount of paint required is 40 square metres.
input	the colour of the paint
	The area of fence is calculated as 40 square metres.

[3]

23 Identify **three** stages of the program development life cycle from the following list of words.

analysis **decomposition** **design** **input**

pseudocode **testing** **variable**

1 .....

2 .....

3 .....

[3]

24 Identify **three** different tasks in the analysis stage of the program development life cycle.

1 .....

.....

2 .....

.....

3 .....

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[3]

25 Describe the purpose of test data. Include an example of a type of test data in your answer.

Description .....

.....

.....

.....

Example .....

.....

[3]

26 A range check is used to validate that the input temperature is an integer between –100 and 0, inclusive.

Suggest suitable normal, abnormal, extreme and boundary test data to test if this validation check is working correctly.

Normal test data .....

Abnormal test data .....

Extreme test data .....

Boundary test data .....

[4]

27 **Four** development life cycle stages and **five** descriptions are shown.

Draw **one** line from each stage to the most appropriate description.
Not all descriptions will be used.

Stage	Description
testing	identifying the problem and requirements
analysis	reviewing the final solution to suggest further developments
coding	making sure the program code works as expected
design	using structure diagrams, flowcharts and pseudocode to plan the solution
	using a programming language to create the solution

[4]