



GCE EXAMINERS' REPORTS

AS COMPUTER SCIENCE (NEW)

SUMMER 2016

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Annual Statistical Report

The annual Statistical Report (issued in the second half of the Autumn Term) gives overall outcomes of all examinations administered by WJEC.

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COMPUTER SCIENCE
General Certificate of Education
Summer 2016
Advanced Subsidiary/Advanced
UNIT 1

Many of the candidates demonstrated that they understood and could answer questions on most of the specification. Candidates were obviously well prepared for this exam and many good answers were evident with numerous candidates giving extended answers where appropriate. However, it was slightly disappointing to see many candidates not giving enough technical detail on traditional computing topics like random access files and standard modules.

Individual Questions

1. As this was an AO2 question, candidates were expected to relate their answers to the algorithm provided.
 - (a) A minority of candidates were able to state the role of MOD in the algorithm provided, stating that MOD checked if the number is divisible by 2. However, only a few were able to fully explain the role of MOD, by stating that if the result of the modulus is 0 then the number can be divided by 2 and is an even number and if the modulus is not exactly 0, then the number is not exactly divisible by 2, hence it will be odd number.
 - (b) A minority of candidates were able to describe the purpose of selection using an example from the given algorithm.
 - (c) A minority of candidates were able to describe the purpose of repetition using an example from the given algorithm.
2. Most candidates were able to accurately complete the truth table for \overline{A} and $B.C$ expressions, but only a few candidates were able to complete the truth table for more demanding $\overline{A} + B.C$ and $\overline{A}.(A + B.C)$ expressions.
3. Around half of candidates were able to describe the function of the main components of the Von Neumann CPU architecture. Candidates were particularly strong in naming the components.
4. Around half of candidates were able to describe six Integrated Development Environment (IDE) tools used in the development and debugging of programs. A few candidates did not attempt this question.
5. (a) Most candidates were able to describe simplex, half-duplex and full duplex transmission methods.

- (b) Only a few candidates were able to describe what is meant by a data collision on a bus network and in particular struggled with how such collisions should be dealt with. In this question, many candidates failed to use the correct technical terminology.
6. (a) Most candidates were able to state the meaning of the term byte, only a minority were able to state the meaning of the term word.
- (b) Many candidates were confident in converting from the hexadecimal to binary number system. Fewer candidates were as confident in using binary addition and some were penalised for not showing their working out.
- (c) Many candidates were able to describe two's complementation in an 8 bit register and gave a suitable example to illustrate this.
- (d) This question was poorly answered and most candidates struggled. In particular, candidates were unable to convert their answers into denary as the question required.
- (e) This question was poorly answered. Most candidates were able to show the effect of truncation and rounding on 26.8_{10} , with only a minority being able to describe truncation and rounding. A very few candidates were able to describe their effect upon accuracy.
7. This question was the most poorly answered of the whole paper. A minority of candidates did not attempt the question.
8. A very few candidates were able to write a fully functioning binary search algorithm. Most candidates input *SearchValue*. A very few candidates declared the array and correctly discarded half of array at each pass.
9. A minority of candidates did not attempt this question. Only a few candidates were familiar with the term standard modules.
10. Around half of the candidates were able to simplify the given Boolean expression. Some candidates were penalised where they hadn't clearly shown each step.
11. Around half of candidates were able to draw an entity relationship diagram to represent the given situation. Some candidates were penalised for not using a recognised convention for representing one-to-many relationships.
12. (a) A majority of candidates were able to name two methods of changeover that a systems analyst may suggest to an organisation. Around half of candidates were able to compare these methods.
- (b) Very few candidates were able to describe the typical contents of maintenance documentation.
13. Around half of candidates wrote a response that showed an adequate understanding of the requirements of the question and a satisfactory knowledge of backup routines and suitable secondary storage mediums. These candidates used appropriate technical terminology referring to the indicative content in the mark scheme.

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UNIT 2

Introduction

Unit 2 is a practical examination with candidates needing to demonstrate the application of knowledge and understanding at all times.

General Comments

Most of the candidates demonstrated a good understanding of the specification and attempted most of the questions. Many candidates were well prepared and many excellent answers were evident. There was evidence also that candidates had been well prepared for the majority of the practical programming elements found in section B.

Comments on Individual Questions:

Section A:

- Q.1 This was well answered by most candidates, however, some candidates could not select appropriate data types or validation methods.
- Q.2 Many good answers were seen although some candidates did not know that a foreign key should be included in the linking table.
- Q.3 Not well answered. A majority of candidates used incorrect flowchart shapes and the logic was often difficult to follow.
- Q.4 Candidates did not perform well in this question. They invariably failed to apply their knowledge to the scenario.
- Q.5 Many candidates did not understand the term “modes of operation”. Those candidates who understood the term failed to supply reasons why one mode of operation is more suitable to the application in the question than another mode of operation.
- Q.6 As is the case with algorithm questions, some candidates scored full marks but a large number seemed to have no clear idea about algorithm design. The number of candidates attempting this question was also disappointing with approximately 20% of candidates not attempting to write an algorithm at all.

Section B:

Q.1 This was generally well answered with candidates either scoring very highly or not gaining any marks. It was pleasing to see that most centers had thoroughly prepared candidates for the prospect of fixing “broken” code. Visual Basic was the most popular language opted for by candidates, with Python being the second most popular and the least used was Java.

NB. With Java most centres used the recommended Netbeans IDE with some centres using Eclipse and a small number of centres using BlueJ. Unfortunately, from the evidence seen, BlueJ was not well suited to the demand of an AS-level paper

Q.2 Generally not well answered. Many candidates were unable to implement validation checks nor deal with file handling.

Q.3 This question was generally well answered. Many candidates showed detailed annotation of the code.



WJEC
245 Western Avenue
Cardiff CF5 2YX
Tel No 029 2026 5000
Fax 029 2057 5994
E-mail: exams@wjec.co.uk
website: www.wjec.co.uk