

UNIVERSITY OF MALTA
SECONDARY EDUCATION CERTIFICATE
SEC

COMPUTER STUDIES

May 2006

EXAMINERS' REPORT

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SEC Computer Studies
May 2006 Session
Examiners' Report**

Part 1: Statistical Information

Table 1 shows the distribution of grades awarded in the SEC Computer Studies Examination held in May 2006.

Table 1: Distribution of grades

Grade	1	2	3	4	5	6	7	U	Abs	Total
Paper A	72	191	287	242	86	-	-	49	2	929
Paper B	-	-	-	73	152	121	57	100	24	527
Total	72	191	287	315	238	121	57	149	26	1456
% of Total	4.95	13.12	19.71	21.64	16.35	8.31	3.92	10.23	1.79	100%

Part 2: Comments regarding performance**2.1 Paper 1**

Table 2 shows the average mark obtained for each question in paper 1.

Table 2: Average marks obtained in Paper 1 questions.

Question	1	2	3	4	5	6	7	8	9	10	11	12	13
AVG	3.2	3.1	3.4	3.7	4.5	1.7	4.6	5.0	1.4	3.4	2.6	2.4	3.7
MAX	5	5	5	9	8	6	8	10	4	6	6	8	5
%	64.27	62.26	67.25	41.6	55.8	28.65	58.07	49.86	35.78	56.97	43.66	30.3	74.78

In general besides the fact that some students evidently have not studied, the biggest drawback that most students had is their very low level of English, resulting in being unable to understand the questions correctly and/or present their thoughts clearly.

QUESTION 1

Relatively few students got all of question 1 correct. Most candidates did understand and answer most of it. Parts (c) and (d) were the sections that were frequently answered incorrectly.

QUESTION 2

Many candidates answered correctly about 70 % of this question. A *true or false* kind of question includes candidates accumulating marks by guessing answers. This is evident because there were students who got parts of this question wrong even though they were relatively straightforward. In general the score for this question was quite high.

QUESTION 3

It is difficult to correctly analyse a *Match the following* exercise since some candidates may match the parts again by chance. There were incorrect answers may due to the relatively close definitions about *removable storage media* and students who tried to guess.

QUESTION 4

This question seems to have posed some problems to a number of students. A major problem seems to be that most candidates got part (c) concerning the right shifts incorrect. Most students do not have an idea of what a 'right shift' is. While the letter 'K' was given some of the strangest codings, some students do not know what the ASCII code stands for. Most of the candidates got the ASCII questions correct, appreciating the fact that it is desirable to have standard character systems. Other problems were encountered in the *maximum unsigned number* part.

QUESTION 5

Most students do not understand and appreciate the correct names for different applications. Some students do not understand what is meant by 'reason', i.e. 'reason why this device is good for this application'. Most candidates answered in full or in part this question correctly. They gave correct answers for the typical application and reason of the *Touch Screen*, *Pen*, and mostly *Joystick*. There were some evident weaknesses when answering about the plotter. This shows that students are familiar with most common devices but get confused with other not so common devices.

QUESTION 6

This was the question that got the lowest average mark.

Many candidates got zero marks for this question. Some of them did not attempt part (a) at all, while others wrote pseudo-code instead of High Level Language lines of code.

Some students did not understand what 'corresponding code lines' means. This was an easy elementary question but students found difficulty. This means that they do not know

how to program and this area is not being covered properly. This question involved some problem-solving.

QUESTION 7

Most candidates gave incorrect answers. Some of them wrote the ones and zeros erratically and collected some marks in this way. However all of these students failed to get the logic circuit correct. Some candidates sketched the logic circuit incorrectly, clearly demonstrating their lack of practice in combinational logic.

QUESTION 8

In question eight, candidates were asked to differentiate between pairs of expressions. Students showed poor level of English reading capabilities. Some students did not understand what the text 'Differentiate between the following pairs' meant. Some students got *source code and executable code* correct but there were some who misunderstood the terms *assembler and compiler* and *logic error and run-time error*. Most of the students left out part (d) concerning extreme and invalid test data or else they tried to give an answer by expanding on both terms, but this was generally incorrect. This shows a lack of understanding of these terms. There were minimal problems as regards to *Pseudo-coding and Flowcharting*.

QUESTION 9

This question should have been easy to answer considering the projects that students submitted. Students should be familiar with basic systems analysis and design. Still this question scored a surprisingly low mark. This seems to indicate that project work is not done by the student. The words User Documentation and Technical Documentation are quite simple to grasp. It seems that there were students who have never heard of these words and omitted the question entirely. This shows that even though students have got various projects, these are not really helping the student much to appreciate certain key concepts. A problem that can be identified here is that the students could not properly 'think' and answer correctly. Students seem to have a good recall capability but once something like 'identify, giving a reason.....' is asked, they cannot understand what to do.

QUESTION 10

In general the topic of key-fields and files seems to be properly understood. Most candidates answered correctly to parts (a) and (b) but failed to answer properly all of part (c) which involved a calculation. The majority of them did not convert the bytes they were working with to kilobytes by dividing by 1024. This is a straight-forward arithmetic problem which shows that many students are lost without their calculators.

QUESTION 11

Many candidates confused the ALU (arithmetic logic unit) and the CU (control unit). Probably the candidates were not familiar with this type of diagram in schools. Other candidates got the ALU and CU correct (or misplaced) but failed to label the third component (Memory Unit) correctly. Those candidates who labelled the ALU and CU correctly managed to give a good definition about what the units do within a CPU.

QUESTION 12

This question was a simple addition of the squares of five positive integers. This should have been easy to solve using a high level language. Most candidates attempted question 12 but the outcome was not good at all. Many candidates did not even get the program structure correct. Some of them reproduced the superscript *two* that represents the squared feature in their coding. This shows that they do not know that it is impossible to type such a number in any text based application. Very few used the *sqr* function and even fewer got it completely correct. It would be interesting to correlate this mark with their mark in the programming section of their projects. This shows that again the area of Programming is not being given proper importance and students have only minimal knowledge of this topic.

QUESTION 13

Candidates did best in this question. It required simple recall about advantages and disadvantages of having networked school computers. Most answered correctly while there was a bit of ambiguity between the use of the terms internet and intranet.

2.2 Paper 2A

Table 3 shows the average mark obtained in each question in paper 2A

Table 3: Average marks obtained in Paper 2A questions

Question	1	2	3	4	5	6	7	8	9
AVG	11.4	13.6	12.2	10.0	12.3	12.0	9.0	9.6	57.6
MAX	17	17	17	17	17	17	17	17	85
%	67.31	80.16	71.87	58.92	72.05	70.65	52.81	56.62	67.79

QUESTION 1

- a) Some students only mentioned Star Network.
- b) Some students failed to answer question correctly as they did not understand that the question was asking for the advantages and disadvantages of a distributed over centralised system.
- c) Many students got this part of the question correct mentioning a bar code reader, touchscreen of an ATM or a credit card.
- d) Was well answered on the whole, subject to the previous question being answered correctly.
- e) EFT - emphasis was on terms such as electronically and computer networks.
- f) For this part not enough descriptive measures were given. Most candidates were not able to define *Electronic Fund Transfer* and *Direct Banking*.

QUESTION 2

- a) This part was not always properly answered. Students did not properly understand the term application.
- b) In general answered well - some gave an answer for an off-the-shelf package.
- c) Mostly correctly answered.
- d) Some just mentioned the different types of syntax errors.
- e) Some students did not understand the keywords and mixed up the definitions.

QUESTION 3

- a) A poor definition of parity check was given in general.
- b) Some answers were too short.
- c) Some answers were short. Just one major difference was often mentioned.
- d) Generally answered correctly.
- e) Weak definitions were given - An example helped students obtain marks.
- f) Lacked precision in technical words e.g. 'Stores the address' rather than 'the instruction' was a common answer. Some candidates could not explain the use of the Instruction Register.
- g) Many knew the unit but some just gave the unit omitting the definition.

QUESTION 4

- a) The majority answered this question correctly.
- b) In general answered well. But some poor answers were given for the function of the Operating System.
- c) Generally answered correctly.
- d) Some answers were too short; some candidates interchanged definition while other candidates had no idea.

- e) Very poor answers on the whole. Examples helped obtain some extra marks.
- f) In general answered well. Some candidates did not understand what is meant by a dedicated computer system. A number of candidates got the *dedicated computer system* question wrong, thus not being able to identify any use of embedded computers.

QUESTION 5

- a) The majority answered this question correctly.
- b) Some fields were considered incorrect when they did not explain what they meant. Others rewrote the same fields which were already given.
- c) Most answers showed that the term keyfield was understood.
- d) Most did not understand the difference between 'verification' and 'validation'.
- e) Most students gave one type of prevention, some gave two or more.
- f) Generally well answered.
- g) Very few correct answers were given for this part.

QUESTION 6

Many students avoided selecting this question. Many of those who did, scored low marks. In general most students did not adequately demonstrate proper knowledge of programming.

- a) For this question, some students re-wrote the flowchart in pseudo-code, without mentioning the function of the program.
- b) Datatypes such as real and array of integer were correctly mentioned.
- c) This was answered correctly by those who understood the function of the algorithm.
- d) This was answered correctly by those who understood the function of the algorithm.
- e) Since 5 numbers were given in question 5, many programmed an array of 5 numbers, thus eliminating T. For those who understood the use of the flowchart, the program was developed properly.

QUESTION 7

Most difficulties were spread around drawing a logic circuit for the truth table and representing -39 in an 8-bit two's complement register.

- a) Was answered correctly on the whole.
- b) Most of the students who tackled this question got the gates for Q right.
- c) Q was answered correctly on the whole; the answer to P depended on question (b)
- d) Very few answered this question correctly, and very few knew it was the Half adder.
- e) Answers to this question were not precise.
- f) Many students answered correctly on the whole. Marks were deducted for correct answers without workings.

QUESTION 8

- a) Some students answered all five. Most definitions lacked detail.
- b) Many students answered correctly on the whole.
- c) Most candidates got the part about expert system incorrect. Most examples of an expert system were also incorrect. Some students confused expert system with a dedicated system.
- d) Many students answered this part correctly.
- e) Many answers given lacked precision.

2.3 Paper 2B

Table 4 shows the average mark obtained in each question in paper 2B.

Table 4: Average marks for Paper 2B questions

QUESTION	1	2	3	4	5	6	7	8
AVG	4.9	7.1	8.9	8.3	9.2	6.7	6.2	6.7
MAX	17	17	17	17	17	17	17	17
PERCENT	28.93	44.43	52.27	48.61	57.22	39.54	36.71	48.17

QUESTION 1

This was the least popular question.

- (a) Only a handful of candidates drew the correct flowchart for the given problem. A considerable number of candidates have only a superficial concept of flowcharting in general.
- (b) As a consequence of part (a), the dry run asked for through this item lead to incorrect results.
- (c) A considerable number of candidates just provided examples of loops, such as For do, Repeat until, etc. instead of identifying the loop from the flowchart.

QUESTION 2

- (a) Generally correctly answered. However one common error was that some students provided "integer" as the data type for "Selling Price"
- (b) Most students failed to provide a complete definition for each item mentioned and therefore lost half the marks.
- (c) With the exception of a few candidates, this item was generally answered correctly.
- (d) As for (c)
- (e) Common erroneous responses for this part.

QUESTION 3

- (a) Generally answered correctly.
- (b) Only a handful of candidates provided reasonably correct features of the CAD program. Common erroneous responses were the generic terms – faster, more efficient, etc.
- (c) Generally answered correctly.
- (d) Generally answered correctly. However a number of candidates are of the opinion that the thermal printer is “impact”.

QUESTION 4

- (a) and (b) Most students have only superficial knowledge of the systems analysis/system life cycle. They failed to provide concrete examples of the contents of the feasibility report. A recurring phrase provided by candidates was “whether it is worth it or not”.
- (c) Generally answered correctly.
- (d) Generally correctly answered. However a number of candidates swapped the “pilot” changeover with the “phased” changeover.
- (e) Though most candidates knew and listed the security measures, they failed to describe them and therefore lost half the marks.
- (f) Only a handful of candidates knew the difference between the two types of documentation.

QUESTION 5

One of the most popular questions.

- (a) Again, most candidates provided generic terms as advantages for the use of the spreadsheet, such as, neater, more organised, easy to use, etc.
- (b) Excluding the few candidates who used the ‘+’ symbol to add the marks (and therefore lost one mark); this item was generally answered correctly.
- (c) A common erroneous answer to find the highest mark was to, first, sort the marks.
- (d) Generally answered correctly.
- (e) Very few candidates provided correct responses. Common answers were, “re-typing the marks”, “visual checking”, etc
- (f) Generally answered correctly, however some interchanged the “cell” with the “label”.

QUESTION 6

- (a) Generally answered correctly. Some lost one mark by not mentioning the comparison operations.

(b) A number of candidates confused the registers that are normally associated with the ALU (accumulator, shift register) with those of the Control unit (program counter, instruction register).

Another group of candidates mixed up the function/contents of the latter two registers.

(c) Few candidates succeeded in getting all the five true/false answers correct.

(d) A considerable number of candidates provided the correct sequence of steps for the fetch execute cycle.

QUESTION 7

(a) Generally answered correctly.

(b) Generally answered correctly.

(c) Though most candidates provided correct examples of the two types of software, most failed to provide a reasonably correct differentiation between the two types.

(d) Only a couple of students were aware of three concrete tasks of the OS. Common erroneous and generic answers were, "to boot the computer", "to load a program", "to save", etc.

QUESTION 8

This was a very popular question.

(a) Few candidates provided a full and complete answer to the function of a file server.

(b) Generally answered correctly.

(c) Generally answered correctly. However only few were awarded the full marks for four correct responsibilities.

(d) Generally answered correctly.

(e) Almost all candidates were awarded half the marks because they treated the explanation of the three terms, superficially. Many students confused the "www" and the "internet".

Chairperson
Board of Examiners
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