

UNIVERSITY OF MALTA
SECONDARY EDUCATION CERTIFICATE
SEC

COMPUTER STUDIES

May 2007

EXAMINERS' REPORT

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SEC Computer Studies
May 2007 Session
Examiners' Report**

Part 1: Statistical Information

Table 1 shows the distribution of grades awarded in the SEC Computer Studies Examination held in May 2007.

Table 1: Distribution of grades

Grade	1	2	3	4	5	6	7	U	Abs	Total
Paper A	75	177	256	268	51	-	-	37	2	866
Paper B	-	-	-	70	173	121	65	40	25	494
Total	75	177	256	338	224	121	65	77	27	1360
% of Total	5.5	13	18.8	24.9	16.5	8.9	4.8	5.7	2	100%

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

This true/false question was generally answered correctly. Part (d) seemed to be the trickiest one. Some students got confused and did not obtain full marks.

Question 2

The majority of candidates provided the correct input device for each of the situations provided. The most common erroneous response was 'plotter' for the input of a hand-drawn sketch of a cartoon character! Some students entered an output device instead of the proper input device. As in question 1 some students did not obtain maximum marks in this question.

Question 3

Excluding HTML (a considerable number of candidates think that HTML stands for 'HoTMaiL'), candidates provided the correct meaning for the other three acronyms. Most candidates provided correct explanations for ROM and for OCR. However common erroneous answers for the CPU was 'the brain of the computer' and for HTML was 'sending emails ...'. This question proved to be harder than the previous two. Part (d) on HTML was the most difficult to answer. Candidates who got hypertext correct were awarded 1 mark. Only few of the candidates got maximum marks in this question.

Question 4

- (a) Most candidates sequenced the stages of the system life cycle in the correct order.
- (b) Only a handful of candidates provided three correct reasons explaining why the 'Control and review' stage is important.

The majority of candidates scored only 1 mark for one correct reason. Only a handful of students got maximum marks. In part (a) the term "control and review" appeared to have confused most of the candidates. In part (b) several candidates gave a generic response.

Question 5

Both parts of this question were generally answered correctly. However some candidates seem to be insecure regarding the exact difference between freeware and shareware. A significant number of students could not distinguish between the two types of user licenses. Only some of the students managed to get full marks in this question.

Question 6

- (a) and (b) Excluding a few candidates, these parts of the question was generally answered correctly.
 - (c) A considerable number of candidates provided the generic terms 'validation' or 'verification' as answers, without suggesting the specific type of validation check.
- Part (c) proved to be more difficult. In fact only 3% of the candidates scored full marks in this question.

Question 7

Most parts of this question were correctly answered by many students indicating that students have a sound knowledge of the number systems. Some candidates however scored a zero for this question. This implies that binary number conversion methods were not covered by some candidates. Some students shifted left instead of right.

Question 8

This seemed to be an easy question. In fact more the three quarters of the candidates got full marks in this question. Excluding the few candidates who provided some incorrect entries in the truth table, this question was generally correctly answered. At times the markers found it difficult to decipher the shape of the gates drawn by some candidates for part (b)!

Question 9

This question was well answered. Aircraft simulator was a popular example given by the candidates. Some candidates did not seem to have sound knowledge of computer simulations. They confused it with CAL, CAI, presentations, etc.

Question 10

Most students knew the distinction between serial and direct access and provided elaborate responses. On the other hand only a handful of candidates provided examples of the correct uses for each type of access. The bulk of the candidates listed the type of media that may be used for each type of access. The majority of candidates is aware of optical storage and hence provided correct responses. However a few candidates have the misconception that the hard disk is an optical system!

Question 11

The fact that most of the candidates got full marks for this question indicates that they have had exposure to an e-mail system. Some candidates seem to be unable to distinguish facilities from advantages.

Question 12

Few candidates answered part (a) correctly. Some gave 20^2 as the answer to provide the correct number of directly addressable memory locations. While candidates have the correct concept regarding the use of the data bus, however almost all candidates provided a generic answer for the use of the control bus. Common answers were 'to transfer control signals' and the like.

Part (c) proved to be the hardest in this question. Some students exchanged the roles of the Instruction Register and the Program Counter. This indicates that regarding the use of the IR and PC registers, a considerable number of candidates showed that they are unaware of their proper function.

Question 13

A considerable number of candidates provided full and correct programs. The loop was the section of the program in which the other students fared worst. A common mistake was declaring a constant identifier after a variable declaration.

Some had no idea of computer programming. These candidates either left the space blank or produced extremely poor answers.

2.2 Paper 2A

Question 1

A straight forward question based on the Systems analysis course work and some simple recall. Some candidates found it hard to distinguish between digitalizing and cataloguing and most chose the barcode reader as the peripheral device to be used for digitalizing instead of choosing the scanner.

- a. Unfortunately as soon as a good percentage of students saw the word library they did not attempt to read and understand 'digitalizing all the books', thus their answer tended to be out of point.
- b. A good number of students gave answers which were not related to 'a data entry clerk'.
- c. Many students were unable to reproduce three coherent stages.
- d. Some did not realise that this was a LAN situation – disappointing considering their project work.

- e. Many did not know that there was a difference.
Another difficulty noticed was when differentiating between backing up and archiving, since most did not know what archiving was about.

Question 2

Another straight forward question.

- a. A good number of students do not know the difference between field, record and item – although they had to submit a database assignment.
- c. Most managed the idea of generations, but quite a number got their timeline wrong and presented the 'son' as the oldest. Most did not refer to what happens after the third save, reference to error recovery was very, very rare. Some Very long winded explanations which were still incomplete or inherently wrong using poor language were also given.
- d. More correct answers were expected.
- e. Fairly good answers, some got mixed up in the language.

Most candidates could not identify a record, since most gave an incorrect answer to part (a) that asks for an example of a record in the hospital database. This was also reflected in part (e) where some still could not clearly distinguish between a field and a record. Despite all this almost all candidates gave the correct list of five fields in part (b).

Question 3

This was an easy question to answer. Most students gave correct answers.

Strangely enough, the most incorrectly answered part of this question was the application of an input device, especially when the input device chosen was the keyboard. Most students answered "to enter data into the computer" which is obvious when the question asks about input devices.

When asked for two differences between ROM and RAM, students normally considered the two counter parts of the same difference to be two different answers. For e.g. the fact that RAM is volatile and ROM is not volatile, is not to be considered as two separate differences but as the same difference.

More correct answers were expected for the data flow 'direction'.

Question 4

Considering that these students have been working on networks and using mail for the last few years one would have considered this to be a fairly straightforward question. Unfortunately it requires a certain level of language ability which the students are not capable of. The words 'define', 'give an application of...', 'explain', 'what is the use of...' expected a level of structuring and presentation of knowledge which the majority of students did not possess. Some answers were long winded, partly out of point, repetitive and generally not exhaustive instead of presenting a set of points related to the number of marks carried by the question.

Despite the wide use of serial numbers and activation keys in today's software installations, few candidates were able to correctly define and give an example of these security related terms.

Candidates were able to comment correctly on the use of email to communicate with other businesses faster, and the internet for companies to promote themselves on the

market, however there is generally no clear idea of what the term “access rights” means in relation to a network.

With regards to the negative effects of computerization there is the common misconception that computerization is bringing about unemployment, something disproved for the last twenty years or so.

It is disappointing to find a lack of examination skills in paper 2A candidates. It might be time to instruct students on how to use ‘pseudo code’ when it comes to answering questions.

Question 5

This was a straightforward question answered fairly well by most candidates.

A common misconception for 2's complement numbers occurred when dealing with positive numbers. Several students apply the 2's complement method of converting 1's to 0's and 0's to 1's, and adding a 1, even if the number represented is positive, not knowing that positive numbers are represented as they are when converted.

Few students knew about the existence of UNICODE as a 16-bit code for representing non-western characters.

Some students also regarded a register to be “a memory location”. Something it is absolutely not.

Question 6

The word ‘differentiate’ was a stumbling block for a good number of students and cost them precious marks. Most have no idea of the difference between 3GL and 4GL or which is which.

Most candidates scored all or almost all marks for the part of the question (part b) asking about the difference between 3GLs and 4GLs, however only a few got the example of a 4GL correct. For example while they were correctly stating the properties of 3GLs and 4GLs they still labeled Pascal as a 4th Generation Language.

Another common misconception was giving Java as a 4th Generation Language when asked to give an example. Even if several applications like NetBeans, Eclipse and Java Builder help in producing applications in a similar way to Delphi and VB, Java is still a 3rd Generation programming Language.

Question 7

Most students got this question correct. Except for a minority that mistook the missing logic gate in part (a) for an OR gate.

Some students gave proof of the equality of the logic diagrams in part (d), by drawing truth tables with 2 inputs but with 8 combinations. This was not marked as incorrect and no marks were deducted, however it is worth nothing that 2 inputs require a truth table with 4 combinations and not 8.

Question 8

Most students gave incorrect answers to part (a) of this question that asked about the function of the algorithm depicted in the question. Most of the students simply wrote in their own words part-by-part the steps of the flow chart. Only a few noticed that the algorithm outputted the total sum of numbers between two integers inputted by the user.

When asked to implement the program, some students made use of labels, instead of applying something more structured like a post-condition loop (e.g. *repeat until* in case of Pascal or *Do Loop Until* in case of Basic). Most students found it impossible to succinctly and coherently explain this algorithm. Otherwise the attempts were generally fairly good.

2.3 Paper 2B

Question 1

Part a) was relatively simple to answer. Some candidates must have found it hard to explain what a high level language is in b). The true or false part in c) was quite difficult for some students. Occasionally some students obtained high marks for this question, whilst others scored marks lower than 10 out of 17.

Question 2

Some students scored very high marks in this question, whilst a few others scored marks lower than 10 out of 17. This shows that some candidates were unfamiliar with certain basic computer terms that relate to computer architecture.

Question 3

This question was not well answered. This is perhaps due to the fact that it required quite an amount of recall and the student had to be familiar with basic terminology. It also seems that the questions proved to be difficult to read and understand.

Question 4

This question seems to have been quite well answered. This could be because the question requires very simple recall with association. Data to help the student was given and the student had to properly insert this data into a table.

Question 5

This question seems to have been quite well answered.

Question 6

This question seems to have been quite well answered.

Question 7

This seemed to be one of the most difficult questions from the marks obtained. Very few candidates selected this question. Those who did obtained a low mark. This question was based on logic gates. It shows that the students did not have sufficient preparation for this level of difficulty. It should not have been so difficult.

Question 8

Few students got very high marks for this question. This question dealt with programming. It was structured quite simply to solve. It shows that the students were not well prepared for programming which is one of the most difficult topics.

2.4 Comment regarding Coursework presented

On the whole it seems that the work presented is of a good level. There is definitely room for improvement.

- i) Some schools do not adhere to the marking scheme included in the syllabus.
- ii) There is evidence of copying in schools and also in the private candidates' work.
- iii) Some students are not familiar with programming.

Chairperson
Board of Examiners
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