

UNIVERSITY OF MALTA

**SECONDARY EDUCATION CERTIFICATE
SEC**

COMPUTER STUDIES

May 2017

EXAMINERS' REPORT

**MATRICULATION AND SECONDARY EDUCATION
CERTIFICATE EXAMINATIONS BOARD**

SEC EXAMINERS REPORT MAY 2017

SEC Computing May 2017 Examiners' Report

Part 1: Statistical Information

GRADE	1	2	3	4	5	6	7	U	ABS	TOTAL
PAPER A	50	128	173	129	61	-	-	44	8	593
PAPER B	-	-	-	30	57	52	26	24	11	200
TOTAL	50	128	173	159	118	52	26	68	19	793
% OF TOTAL	6.3	16.1	21.8	20.1	14.9	6.6	3.3	8.6	2.4	100.0

Table 1: Overall, statistical information

Seven hundred and ninety-three candidates applied to sit for the Computer Studies SEC level examination. This is forty-two candidates less than last year.

Five hundred ninety-three candidates applied to take the A-paper whereas two hundred opted for the B-paper. Nineteen candidates were absent in both papers, of which eight were registered for paper A and eleven were registered for paper B.

Part 2: Comments regarding candidate's performance

Paper I (Paper 2A Candidates)

Question	Topic Covered	Max	Average	Facility
1	CPU	5	4.27	0.85
2	Memory	7	6.49	0.93
3	Networks	8	6.39	0.80
4	Data Representation	7	5.75	0.82
5	Number Systems	4	3.27	0.82
6	Software and Storage	7	4.93	0.70
7	Computer Logic	7	6.77	0.97
8	Programming Languages	5	3.44	0.69
9	Translators	6	4.17	0.70
10	Types of Computers	5	4.41	0.88
11	JAVA	10	6.96	0.70
12	Flowcharts	6	5.65	0.94
13	System Analysis	8	5.71	0.71

Table 2: Performance and Facility Levels in Paper 1 for Paper 2A Candidates

The question on Programming Languages proved to be the most difficult for the candidates, followed by the question about Translators. The questions on Computer Logic and Flowcharts were found to be the easiest topics covered in Paper 1 by candidates opting for Paper 2A.

Paper I (Paper 2B Candidates)

Question	Topic Covered	Max	Average	Facility
1	CPU	5	3.50	0.70
2	Memory	7	5.33	0.76
3	Networks	8	4.89	0.61
4	Data Representation	7	4.08	0.58
5	Number Systems	4	1.86	0.47
6	Software and Storage	7	3.64	0.52
7	Computer Logic	7	5.91	0.84
8	Programming Languages	5	1.50	0.30
9	Translators	6	2.93	0.49
10	Types of Computers	5	3.13	0.63
11	JAVA	10	3.03	0.30
12	Flowcharts	6	4.83	0.81
13	System Analysis	8	2.77	0.35

Table 3: Performance and Facility Levels in Paper 1 for Paper 2B Candidates

The questions on the JAVA Programming Language and Programming Languages in general proved to be the most difficult for the candidates, followed by the question about System Analysis. The questions on Computer Logic and Flowcharts were found to be the easiest topics covered in Paper 1 by candidates opting for Paper 2B.

Paper II A

Question	Topic Covered	Max	Average	Facility
1	Operating Systems & Storage	18	10.26	0.57
2	Logic & Number Representations	13	8.94	0.69
3	Algorithms and Programming	18	9.78	0.54
4	The CPU	19	9.96	0.52
5	Input / Output Devices & Data Security	17	10.31	0.57

Table 4: Performance and Facility Levels in Paper II A

This paper had five compulsory questions adding to a total of eighty-five marks. Candidates found the question on The CPU to be the most difficult question in this paper. The next most difficult topic turned out to be Algorithms and Programming. The easiest questions were the ones about Logic & Number Representations.

Paper II B

As in Paper IIA, all the questions in this paper were compulsory.

Question	Topic Covered	Max	Average	Facility
1	General Computer Terms	15	8.90	0.59
2	Computer Hardware and The Fetch Execute Cycle	17	7.89	0.46
3	Databases	18	10.32	0.57
4	Data Communication & Devices	18	12.91	0.72
5	JAVA Programming	17	8.00	0.47

Table 5: Performance and Facility Levels in Paper II B

This paper had five compulsory questions adding to a total of eighty-five marks. Candidates found the question on Computer Hardware and The Fetch Execute Cycle to be the toughest, followed by the

question about JAVA Programming. The candidates found the question about Data Communication & Devices to be the easiest question.

Interviews

As in previous years, interviews were conducted to verify the authenticity of the projects submitted earlier. Private candidates were called in and were questioned by a panel of members from MATSEC and the Computer Studies examination board. A good number of candidates exhibited their work and answered the questions presented by the panel. A few others, however, found themselves in difficulty even when answering the most basic questions about their project or the programming language in general.

Reports on Papers I, IIA & IIB

Paper 1

Question 1

The majority of the candidates answered this question correctly.

Question 2

- a. Only a very few candidates did not know what the acronyms stand for.
- b. The majority of the candidates answered (most of) this question correctly.

Question 3

- a. The most common answer was sharing of data and other resources such as a printer. A fewer number of candidates mentioned that communication would be easier.
- b. Even though a large number of candidates identified email as an alternative means of communication, quite a large number answered this part with VOIP or video/teleconferencing as in part d.
- c. Modem or router were the most common answers
- d. The majority of the candidates answered (most of) this question correctly.

Question 4

Parts a and b were answered either both correct or both wrong.

For part c, a large number of candidates answered as hexadecimal being more user friendly or taking less space. Few candidates actually said that it is a 'shorthand' for binary.

Question 5

- a. The majority of the candidates knew how to do binary addition however quite a large number ignored the last carry.
- b. Most candidates answered this part correctly
- c. The most common wrong answer was that it is multiplied by 2

Question 6

- a. The majority of the candidates gave correct answers to this question.
- b. The most common wrong answer was that 'the programmer creates a number of programs at the same time'.
- c. The majority of the candidates gave correct answers to this question.

Question 7

The majority of the candidates answered this question correctly.

Question 8

Quite a large number of candidates were very repetitive when answering this parts a and b of this question. The differences mentioned were that source code is written in HLL which is more user friendly and the source code is machine code which is the only language the computers understand.

Most candidates answered part c correctly.

Question 9

Quite a large number of candidates did not manage to answer this question correctly. At this level, probably there is more focus on the phrase 'a compiler translates a program all at once and an interpreter translates it line by line', and thus the candidates have very little understanding of the difference between these translators.

Question 10

The majority of the candidates managed to answer most of this question correctly.

Question 11

Unfortunately, as always, this question showed how much candidates lack basic programming knowledge at this level. When it comes to the theoretical part (parts a & c) candidates seem to manage, however when it comes to actual programming (part b) most candidates have serious difficulties.

Question 12

The majority of the candidates answered this question correctly.

Question 13

Many candidates answered part a of the question correctly. For parts b and c, quite a number of candidates mixed up the stages involved and also failed to identify the stages at which the practical procedures given in part c are carried out.

Paper 2 A

Question 1

The majority of the candidates answered part (a) correctly however a considerable amount failed to explain how the mentioned resources are managed. In part (b), the majority of candidates were able to mention one or two features, but few managed to mention three features. In part (g), few candidates managed to give a well labelled diagram.

Question 2

In general, candidates did well in this question. In part (a), few candidates identified binary number with base 2. In part (a) (iv), few candidates were able to explain through the range of numbers which may be stored in such a register.

Question 3

Part (a) proved to be challenging most notably the use of expressions in control flow statements. In part (b), a few found it difficult to draw the flowchart, most notably the logical depiction of the iteration. Part (c) proved to be the hardest question where the majority of candidates could not explain what branching and iteration mean.

Question 4

This proved to be the hardest question. As could be expected, rote memorisation was most evident in 4 (b), (c) and (d) with marks being lost due to partial answers which do not make sense on their own e.g. mentioning PC. It is advisable that future candidates are assisted to understand the relevance of each part of the CPU. A considerable number of candidates failed to answer correctly part (e). In part (g), various candidates confused opcode with operand whilst that few were able to explain what would happen through the OR instruction.

Question 5

In part (a), it is evident that some candidates were not able to distinguish between input, output and input/output devices. In part (b), various candidates could not describe each phrase. Most notably, many candidates referred to page layout as being an option to change between portrait and landscape.

Paper 2 B

Question 1

A good number of candidates were knowledgeable of the terms being questioned while others struggled with even the most basic terms. A number of candidates had difficulties in answering parts (a) and (b).

Question 2

While a number of candidates did answer questions on computer hardware correctly, others found it very difficult to answer questions related to the Fetch Execute Cycle.

Question 3

Unfortunately many candidates failed to show mastery of even the most basic concepts related to databases. A particular issue proved to be found in understanding relation between tables.

Most of the candidates attempted all sections, however, there were a number of candidates who either didn't understand question or found difficulty to answer parts (a), (b) (ii) and (c).

Question 4

The majority of the candidates answered this question correctly, in fact this can be considered as one of the questions where candidates performed well and answered most of the sections. Considering the fact that this question was based on Low Level Language, the response was good. Few candidates encountered difficulties in parts 4(a), (d) and (f).

Question 5

As in previous years, some candidates found answering this question related to JAVA Programming difficult to answer. Candidates either didn't read the question well or found difficulty to express themselves.

**Chairperson
2017 Examination Panel**