UNIVERSITY OF MALTA

THE MATRICULATION EXAMINATION
ADVANCED LEVEL

COMPUTING
May 2017

EXAMINERS' REPORT

MATRICULATION AND SECONDARY EDUCATION
CERTIFICATE EXAMINATIONS BOARD

Computing
Advanced Level
May 2017

Part 1: Statistical Information

The distribution of grades awarded in the May 2017 session are given in the table below:

GRADE	A	B	C	D	E	F	abs	TOTAL
NUMBER	13	25	46	32	19	18	8	161
% OF TOTAL	8.1	15.5	28.6	19.9	11.8	11.2	5.0	100

Part 2: Comments regarding candidate's performance

Paper I

Section A

Question 1

a. Several candidates were not aware that an int variable cannot be assigned to a double without a cast, and instead replied that they could not find faults with the code.
b. Several candidates do not know how to instantiate classes in Java using the correct syntax, or have never come across the System.out.println() statement during the course of their studies.
c. Most candidates were able to recall the correct answer to this question.

Question 2

a. Few candidates managed to work out all the steps to reach the final answer correctly.
b. Several candidates were not able to distinguish recursive programming from other types of programming.
c. Most candidates answered this question correctly.

Question 3

a. Most candidates answered this question correctly.
b. Few candidates were able to recall all of the correct acronyms and provide a relevant description.

Question 4

a. Most candidates answered this question correctly.
b. In general, most candidates answered this question correctly, although several were not able to recall one of the switching techniques, while others confused the term with another concept.

Question 5

a. Most candidates were not able to recall techniques for data storage using blocks.
b. Few candidates were able to give two examples of UNIX-based systems, though most were familiar with Ubuntu.

Question 6

a. Most candidates were not able to recall types of memory allocation schemes.
b. Most candidates were able to answer this question correctly.

Question 7

Most candidates were able to answer this question correctly.

Question 8

a. Most candidates were able to recall at least two tools.
b. Several candidates could only name and describe one type of language translator.

Question 9

Candidates achieved marks across the whole spectrum for this question, with the average mark being 2.6 out of a possible 5.

Question 10

Most candidates were able to achieve full marks in this question. Most of the few that did not achieve full marks got very low marks, indicating that candidates were either very familiar with lifecycles or they were not familiar at all.

Question 11

Candidates that knew what a Use Case Diagram was did well in this question, but there were candidates that did not seem to know how to draw such a diagram.

Question 12

Many candidates could not describe an EAM, so very few candidates got part b completely right.

Question 13

A few candidates answered correctly. Many named a few features but struggled to name five features. Also, a large proportion of the candidates named the features/components, but did not explain anything.

Question 14

Most candidates correctly named complexity and cost as disadvantages of database systems, but then struggled to name the other disadvantages such as vulnerability to system failure. Some candidates then named advantages of databases instead of disadvantages.

Question 15

Part a was correctly answered by most candidates. However a large number of candidates struggled in part b. The most common error for the candidates that attempted this question was treating the fractional part as negative, giving an answer of -8.75 instead of -7.25.

Question 16

Some candidates got this right with a small number of steps. Some candidates included a lot of unnecessary steps. Some candidates try to use complex rules such as De Morgan's theorem before doing any kind of simplification beforehand.

Question 17

Almost all candidates got part a right, but then many could not name an advantage of serial transmission over parallel. About half the candidates could answer part c.

Question 18

In general, candidates struggled with this question, with some simply listing some addressing modes at random. Many gave different answers to parts c and d, indicating that they either did not understand the question properly, or had no real understanding of addressing modes.

Question 19

For this question, there were many candidates who got 4 or 5 parts right, and many candidates who did very poorly. It seems that the latter could not apply their knowledge of different types of memory (RAM, ROM, flash, etc.) to example applications.

Question 20

There were a few answers where the candidates could not even fill in the Karnaugh map properly, but in general, candidates did well in this question.

Paper II

Question 1

Most candidates who attempted this question did very well in parts a, b, c, d, g and h. In part e, a common error was to give the number of bits using normal binary representation rather than BCD, that makes use of 14 instead of 16 bits. Part f should have been straightforward for BCD, but many candidates did not realise that only the first BCD digit was required.

Question 2

Part a posed no problems. Very few candidates could answer part b. For part c, some candidates struggled to name two control signals (e.g. read enable, write enable), indicating that they do not have an understanding of the control bus. For part d, most knew why cache memory is more expensive, but then could not say why cache memory improves performance. For part e, very few candidates could name segment and index registers.

Question 3

Most candidates who attempted this question did very well in part a. Many of the candidates who got part a right answered part b right as well. For part c, there were many who could not figure out the reason. Some candidates answered correctly that the instruction limits the input range to ax <= 7, and some also mentioned that this limits the number of iterations.

Question 4

a. Few candidates were able to trace the execution of code through the constructors and methods of the various objects being instantiated. The large majority were only able to identify two out of four correct outputs.
b. Most candidates answered this question correctly.
c. Most candidates answered this question correctly.
d. Most candidates answered this question correctly.
e. Few candidates were able to identify three problems in the code.
f. Few candidates were familiar with the concept of serialization.

Question 5

a. Most candidates answered this question correctly.
b. The majority of candidates were able to recall three protocols, however most were not able to explain their functions in detail.

c. Most candidates answered this question correctly.

Question 6

a. Most candidates answered this question correctly.
b. Several candidates were able to distinguish between polling and interrupts.
c. In general, candidates were able to describe the tasks performed by the interrupt handler, however neglected to mention that the currently executing process is kept on hold and then resumed after the interrupt has been processed.
d. Few candidates were able to provide a satisfactory answer to this question.

Question 7

For part a, there were many errors in the class diagram: formatting, visibility, types of relationships and their cardinality, etc., with very few candidates drawing the diagram completely right. There were no major issues in parts b, c and d. In part e, some candidates did not link their answer to part c as required, and simply described beta testing in general.

Question 8

a. Few candidates were able to arrive at the 3rd Normal Form, though most successfully completed the 1st Normal Form.
b. Most candidates could provide an example of a transitive dependency, but few were able to give a correct explanation.

Chairperson
2017 Examination Panel