UNIVERSITY OF MALTA

THE MATRICULATION CERTIFICATE EXAMINATION
INTERMEDIATE LEVEL

COMPUTING

May 2008

EXAMINERS' REPORT

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

IM Computing
May 2008 Session
Examiners' Report

Part 1: Statistical Information

Table 1 shows the distribution of grades for the May 2008 session.

Table 1: Distribution of Grades awarded in May 2008

GRADE	A	B	C	D	E	F	Abs	Total
Number	8	23	46	25	15	21	2	140
% of Total	5.71	16.43	32.86	17.86	10.71	15.00	1.43	100

In all, 140 students applied for the May 2008 Intermediate Computing examination session. Two applied as private candidates. Five candidates was absent for the written paper while eight candidates did not present their coursework exercise. Another two candidates scored zero (0) for this exercise.

The weight of the written component is 80% of the global examination mark while the remaining 20% is carried by the coursework exercise. For this session, the mean for the written paper amounted to 43.2 while that of the coursework to 15.1. Thus the mean for the examination is 58.3, an increase of 0.5 of a mark when compared to the mean of the previous year.

Chart 1 and Table 1 below show the distribution of the global marks (written paper plus coursework) as scored by the candidates.

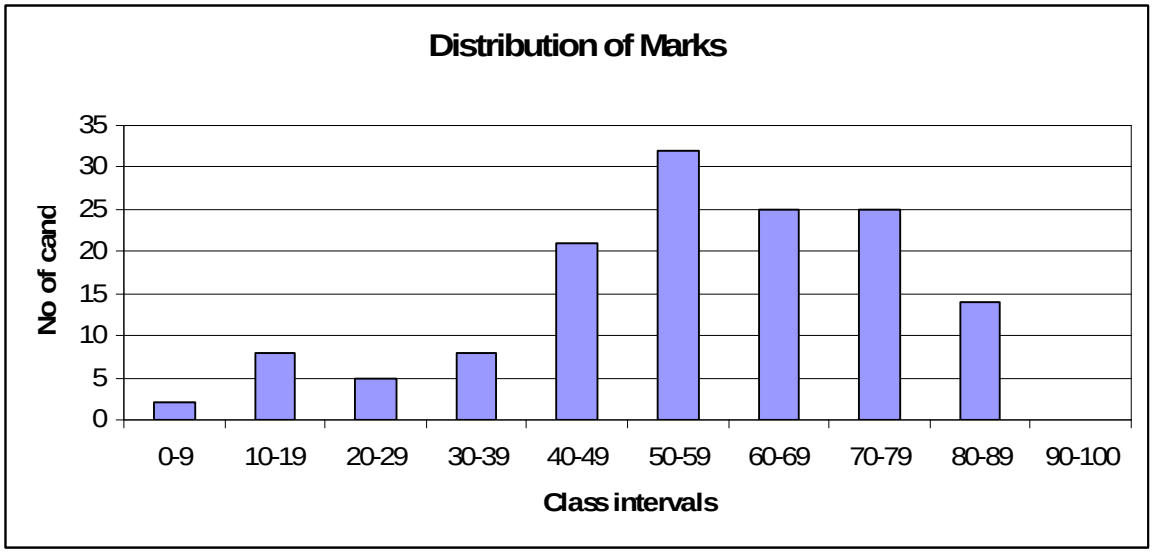

Chart 1

Class intervals	*Frequency*
0 – 9	2
10 – 19	8
20 – 29	5
30 – 39	8
40 – 49	21
50 – 59	32
60 – 69	25
70 – 79	25
80 – 89	14
90 – 100	0

Table 1

The practical component

School/college-based coursework was moderated by the panel during April 08. The moderators reported that in most schools the standard of the programming exercise was as expected at this level and therefore the marks received from these schools/colleges by MATSEC were retained. However in two particular schools/colleges the coursework marks had to be slightly reduced so that all educational institutions presenting students for Intermediate Computing would be playing on level ground.

Item Analysis of Written component

Table 2 below shows the Maximum mark that could be scored for each of the 12 items in the written paper, the Mean mark scored and the Standard Deviation for each item. The table also shows the Facility Index for each item – the index may range from 0, for an item in which candidates obtained 0 marks, to 1.0 for an item in which all candidates scored full marks.

Item Number	*Maximum Mark*	*Mean*	*Standard Deviation*	*Facility Index*	*Choice Index*
A1	6	1.9	1.8	0.3	
A2	6	2.3	1.7	0.4	
A3	6	4.6	1.3	0.8	
A4	6	4.7	1.3	0.8	
A5	6	3.7	1.5	0.6	
A6	6	3.6	1.4	0.6	
A7	6	3.2	1.4	0.5	
A8	6	3.0	1.6	0.5	
A9	6	2.4	1.8	0.4	
A10	6	3.0	1.7	0.5	
B1	20	10.9	3.9	0.5	0.7
B2	20	11.9	4.1	0.6	0.3

Table 2

The Choice Index given in the table above is a measure of the popularity of an item – an index of 0 indicates that an item was not chosen by any candidate, while an index of 1.0 shows that an item was selected by all candidates. The choice index only applies to the two items in Section B because the items in Section A are compulsory.

Chart 2 below shows the Facility Indices in graphical format.

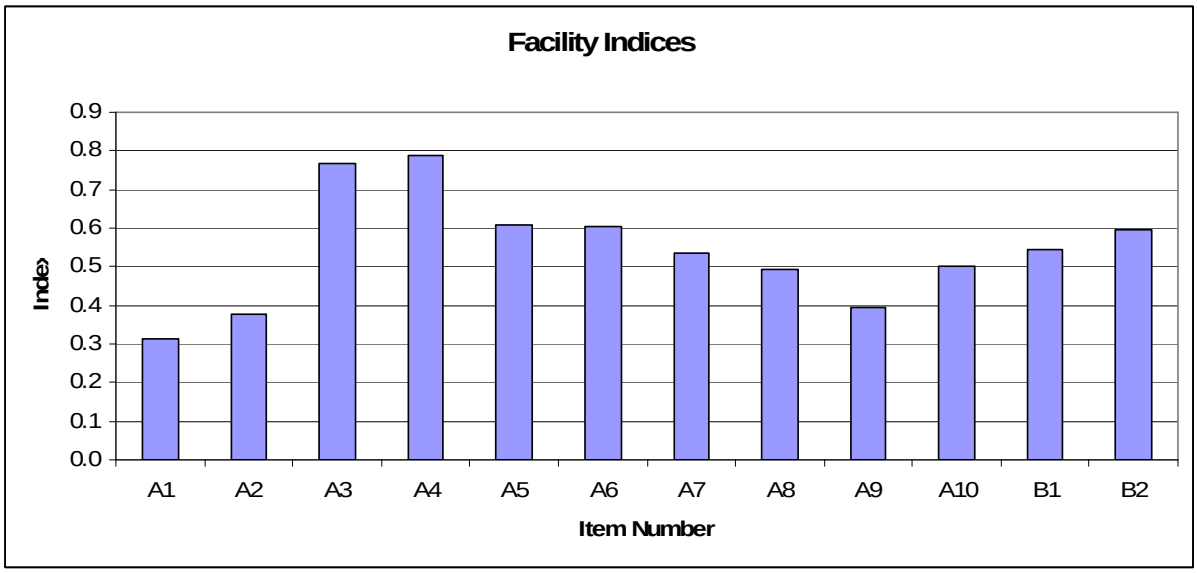

Chart 2

Table 3 below shows the items in decreasing order of facility, together with the topic that the question tested.

Item Number	***Facility Index***	***Topic tested***
A3	0.8	Computer architecture and fetch cycle
A4	0.8	Language translation and effects on society
A5	0.7	Data representation and applications
A6	0.6	Recent trends, legislation and file access
B2	0.5	Database design and security/integrity
A7	0.5	Elements of databases and indexing
A8	0.5	Assembler and assembly language
A10	0.5	System analysis and design
B1	0.4	Networking and communication
A2	0.4	Operating System
A9	0.3	Computer languages and coding
A1	0.2	Computer logic

Table 3

Part 2: Comments regarding candidates' performance

The markers' comments on individual items are being reproduced below:

A1 While most candidates had a good idea of using and simplifying Karnaugh maps, the remaining candidates simply opted to leave this part completed unanswered.
Most candidates seem to not being able of differentiating between a gate and a circuit and so many answered this part incorrectly.

A2 Many candidates answered the first part of this question incorrectly due to lack of differentiating knowledge between management functions and interfaces. Some described different types of operating systems.
As regards part (b) most students knew well what Virtual Memory is and its importance.

A3 The function of the three buses was generally well known but some candidates described the functions of the fetch and execute cycle in too much detail. The translation/decoding stage was omitted very frequently.

A4 In general most candidates answered this question correctly. However some had no clear idea of the difference between plagiarism and piracy.

A5 Most students answered the binary part correctly while few had no idea of two's complement.
As regards part (b) many students could not differentiate between mainframe, minicomputer and microcomputer, and so they gave all sorts of answers.
Most candidates knew the difference between CAD and CAM. It was noted that those who knew the acronyms were able of establishing the relationship between CAD and CAM.

A6 Most candidates had a clear idea on E-Learning.
When it comes to the Data Protection Act, many students could not list four **principles**.
As regards sequential and direct access, most students could distinguish between both accesses but then they could not find a suitable application. Some listed the medium used instead of providing an application.

A7 Many candidates knew what a keyfield is and why it is needed, however the two main items which make up a database proved to be the most difficult part of this question. Many wrote columns and rows instead of records and fields. The section of the advantages and disadvantages of indexing were mostly correctly answered.

A8 Candidates who managed to answer part (a) correctly then got the rest of this question correct too. Many did not identify the 'X' in part (b) as the source code. Part (c – i) did not prove difficult and those who answered this part correctly also got (c – ii) correct.

A9 (a) Most candidates could not clearly distinguish the difference between imperative (that consists of a sequence of instructions) and an object oriented language which makes use of objects (with processing code attached to them).

(b)Candidates found difficulty in getting the Java syntax correct although they tackled the logic of the program correctly. Very few realized that they had to create a 'scanner' instance to enable inputs and some candidates used Pascal syntax especially 'Read' for inputting the age.

A10 Most candidates answered correctly the part dealing with techniques used by system analysts to collect information about the current system. However, many did not answer section (b) regarding Data Flow Diagram properly. The most common error was that they mistook them for Program Flowcharts – in fact many drew a flowchart for a simple program. Very few indeed knew the DFD diagram symbols.

B1 For part (a) some candidates were unable to name the three methods of data communication and thus gave various erroneous answers. As regards part (b) on networks, most students answered this part correctly and knew well what network topologies are. Regarding part (c) many students had a clear idea on the transmission media used for LANs and WANs. Most candidates were unable to differentiate between bandwidth and baud rate of part (d). Regarding the last part of this question, it was clear that very few candidates knew the difference between hubs and routers and how they differ in data transfer.

(a) B2 Most candidates could give the acronym for DBMS but not for DML and DDL. There was quite a lot of wild guesses! Very few could define a Data Dictionary. Candidates showed a hazy idea of the distinction between a traditional file and a relational dbase.

(b) This section was overall properly answered and proved easy for most candidates.

(c) Many students lost marks in file specifications because they listed only a few fields (most of them four fields or less) making it difficult to relate the files and even more to make the system practical for stock control purposes and/or useful queries. It is surprising how many candidates did not show that queries depended on certain criteria or conditions in order to select records. However, many candidates showed that they had a good idea on how to list items below minimum stock levels.

Chairperson
Board of Examiners
July 2008