MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION EXAMINATION
INTERMEDIATE LEVEL
MAY 2014

SUBJECT:	INFORMATION TECHNOLOGY
DATE:	21st May 2014
TIME:	4.00 p.m. to 7.00 p.m.

Directions to Candidates

Note that marks will be awarded for neatness and accuracy. Workings are considered as part of the answer and must be shown.

Section A: COMPUTING PRINCIPLES

Answer Question A1 and any **FOUR** *other questions from this section.*

Question A1
This question is compulsory.

A programmer has been assigned to create a music database for a music company. His first task is to design an Entity-Relationship diagram. The following are the specifications he has been given:

- one artist can have different albums;
- one album can contain many tracks;
- one track can be played many times.

The entities to be considered are: artists, albums and tracks. Each entity has a name, as well as a unique identifier.

a) Design the ER diagram with the information given above. Include all the ER symbols needed such as entities and relationships. **[4 marks]**

b) Briefly explain the function of a *switchboard.* **[2 marks]**

c) What is usually used if you want to perform a particular set of actions every time a database starts? **[1 mark]**

d) What is a database *query*? **[2 marks]**

This question continues on the next page.

The objective of the music company is to help artists achieve long-term creative and financial success while providing consumers with the highest quality music content available. In order to achieve this, the music company sells music-based content directly to consumers through its website.

e) Such a website would usually include a *site-map*. Define the word in italics. **[2 marks]**

f) The website needs to be continually tested. What is *Black Box Testing*? **[2 marks]**

g) Define the term *meta tag*. **[2 marks]**

h) Mention TWO advantages and ONE disadvantage of using such a website. **[3 marks]**

Answer ANY FOUR of questions A2, A3, A4, A5, A6 and A7

Question A2
This question is about *the role of Information and Communication Technology (ICT) today*

a) What is a *Geographical Information System* (GIS)? **[2 marks]**

b) A computer simulation refers to an attempt to model a real-life or hypothetical situation on a computer so that it can be studied to see how the system works. Mention TWO contexts in which it can be used. **[2 marks]**

c) Legislations exist which protect the health of employees within the working environment. Manufacturers are required to ensure that their products comply with the health and safety directives. Within this context, explain:
   i) TWO responsibilities of an employer; and **[2 marks]**
   ii) TWO responsibilities of an employee. **[2 marks]**

Question A3
This question is about *tools required to handle information*

a) *Personal Area Network* (PAN) and *Metropolitan Area Network* (MAN) are two different types of network. Define the words in italics. **[4 marks]**

b) Describe *client-server* and *peer-to-peer* networks, giving ONE advantage and ONE disadvantage of each. **[4 marks]**

Question A4
This question is about *Internet related software*

a) What is an *Internet Protocol*? **[2 marks]**

b) Name and explain THREE such protocols. **[6 marks]**

Question A5
This question is about *Systems Development*

a) The design stage is one of the stages found in the Waterfall Model. Mention and explain any other TWO stages. **[6 marks]**

b) Identify two tasks that are needed during the design stage. **[2 marks]**

Question A6
This question is about *categories of software*

a) *Memory Management* is one type of component of the Operating System. Mention and explain TWO other types of components of the Operating System. **[4 marks]**

b) Many applications make use of a GUI (Graphical User Interface). State FOUR characteristics of a GUI. **[4 marks]**

Question A7
This question is about *Database Systems*

a) Mention THREE advantages of a relational database over a traditional filing system. **[3 marks]**

b) What is meant by *data consistency*, *data redundancy* and *data independence*? **[3 marks]**

c) Describe TWO security procedures you would expect to find in a relational database management system. **[2 marks]**

Please turn the page for Section B.

Section B: HUMAN COMMUNICATION & BUSINESS ORGANISATION

Answer question B1 and One other question from this section

Question B1

a) What is a *co-operative* organisation? Mention ONE advantage and ONE disadvantage of such an organisation.   **[3 marks]**

b) The aim of a *user support system* is to help the users in their work and to provide ways of solving their problems. Mention and explain ONE such support system.   **[3 marks]**

c) Internet *utilities* exist that can be used as Human Communication Media. *Email* and *Web Conferencing* are such examples. Explain how one can use these TWO services in a business both in internal and external communication.   **[4 marks]**

Answer ONE question from B2 and B3

Question B2

a) What is *Departmentalisation*?   **[2 marks]**

b) Discuss the different types of *departmentalisation*.   **[8 marks]**

Question B3

a) What is *electronic communication*?   **[1 mark]**

b) Give *three* examples of how electronic communication is affecting business nowadays.   **[9 marks]**