L-Università ta' Malta

SUBJECT:	**Information Technology**
DATE:	15th May 2018
TIME:	9:00 a.m. to 12:05 p.m.

Directions to Candidates

Workings are considered as part of the answer and must be shown.

SECTION A: COMPUTING PRINCIPLES

Answer Question 1 and any FOUR other questions from this section.

1. **This question is compulsory**.

A Real Estate company maintains a database of properties that are currently for sale and owner details of these properties. The PROPERTIES table fields include: CODE, ADDRESS, PROPERTY_TYPE, BEDROOMS and PRICE. The OWNERS table fields include: OWNER_ID, SURNAME, NAME, and TELEPHONE.

a) Identify a suitable primary key for:
    i)   the PROPERTIES table;   (1)
    ii) the OWNERS table.   (1)

b) Draw an E-R diagram for the Real Estate company database, also showing how PROPERTIES information can be linked with OWNERS information.   (4)

c) Below is a sample of data, showing CODE, BEDROOMS and PRICE fields in the PROPERTIES table:

CODE	BEDROOMS	PRICE
2123	2	65000
3124	2	75000
8125	4	100000
2126	2	50000
3127	3	90000
2128	2	60000

The following search condition is inputted as a query:
(PRICE<70000) AND (BEDROOMS<3)

Using the data shown above, write down the results of the query, showing only the field named CODE.   (3)

This question continues on next page.

The Real Estate Company has decided to put a PROPERTY listing from the database on the Internet by means of a website. Each property in the list has a link to another page within the same website that shows further details for each property. The website also includes a Mail-To facility.

d) Briefly describe **ONE** advantage of putting the list of available properties on a website.
(2)

e) Distinguish between the terms Internet and website. (4)

f) Identify the type of link (internal or external) that the Real Estate website uses to allow users to view details of each property when clicking on an entry from the main list. (1)

g) Briefly explain the function of the Mail-To facility. (2)
(Total: 18 marks)

Answer any FOUR of questions 2, 3, 4, 5, 6 and 7

2. This question is about computer networks and E-learning.

A school is planning to install a network within a recently built small block of classrooms, and setup a Learning Management System to further develop its e-learning strategy.

a) Identify and describe the type of network used for such a set-up within the small block of classrooms. (2)

b) Define the terms:
   i) e-learning; (2)
   ii) Learning Management System. (2)

c) Describe **ONE** tool that would facilitate electronic communication between teachers and students. (2)
(Total: 8 marks)

3. This question is about Internet Commerce.

The introduction of Internet Commerce revolutionised the way businesses operate nowadays compared to how they operated 30 years ago.

a) With today's business scenario in mind, briefly explain **ONE** advantage and **ONE** disadvantage of Internet Commerce. (2)

b) Describe **TWO** popular online advertising methods. (2)

c) Explain why online shopping websites normally make use of the HTTPS protocol, rather than HTTP. (2)

d) Describe the main difference between B2C and B2B Internet Commerce. (2)
(Total: 8 marks)

4. This question is about System Development

    a)   Why is it important to plan a time schedule when developing a new system.   (2)

    b)   Briefly describe **ONE** method that can be used to collect information about the system that needs to be developed.   (2)

    c)   Explain why beta testing is a very popular testing method before launching the final version of a commercial application package.   (2)

    d)   Distinguish between direct and phased system implementation methods.   (2)

    (Total: 8 marks)

5. This question is about Computer-related Crime and Data Protection

    a)   Distinguish between:
       i)   phishing and hacking;   (2)
       ii)   theft and plagiarism.   (2)

    b)   Briefly explain the following:
       i)   data subject;   (2)
       ii)   Data Protection Commissioner.   (2)

    (Total: 8 marks)

6. This question is about Operating Systems (OS).

    a)   Explain **TWO** reasons why modern smartphones would require an Operating System.   (4)

    b)   Define the purpose of the Kernel, Memory Manager and User Interface components of an Operating System.   (3)

    c)   Explain the most important difference between a single program OS and a multitasking OS.   (1)

    (Total: 8 marks)

7. This question is about computer hardware.

    a)   Given a typical processing unit, distinguish between registers and buses.   (2)

    b)   What is the purpose of ROM in a modern computer or electronic device?   (2)

    c)   Describe **TWO** output devices which are highly popular in an office working environment.   (4)

    (Total: 8 marks)

Please turn the page.

SECTION B: HUMAN COMMUNICATION & BUSINESS ORGANISATION

Answer question 1 and ONE other question from this section.

1. **This question is compulsory**.

   a) Email has widely replaced normal post as a means of sending a letter. Explain any **TWO** advantages and **ONE** disadvantage of email when compared to normal post.   (6)

   b) Give **ONE** example of how social-networks can be used by a small company to market a product or service.   (2)

   c) Briefly explain **ONE** benefit of compressing images before attaching to an email.   (2)
   (Total: 10 marks)

Answer ONE question from 2 and 3.

2. a) A Sole Trader of a growing business is considering to form a Private (Ltd.) Company.
      i)   What is a Private (Ltd.) Company?   (3)
      ii) What is a Sole Trader?   (3)
      iii) Describe **ONE** advantage of forming a Private (Ltd.) company over staying as a Sole Trader.   (2)

   b) Give **ONE** reason why a Private (Ltd.) may consider to become a Public (Plc) Company.   (2)
   (Total: 10 marks)

3. Organisations frequently publish an Organisational Chart.

   a) The structure given to an organisation is an important factor in project success. Mention and describe **TWO** departmentalisation methods that can be employed.   (4)

   b) Describe the role of the Chief Information Officer within an organisation.   (1)

   c) Explain how visual communication differs from written communication. Substantiate your answer with **TWO** examples.   (5)
   (Total: 10 marks)