L-Università ta' Malta

SUBJECT:	**Information Technology**
DATE:	6th September 2018
TIME:	4:00 p.m. to 7:05 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 Computer Repair Outlet keeps a computer database of spare parts in stock. Every record in this database identifies a particular spare part through the following fields:

Description, Supplier_ID, Quantity, Part Number, and Selling Price.

a) List the data types you would choose for the fields shown above. (5)

b) Define the following terms:
   i)   record; (1)
   ii) field; (1)

c) Identify a suitable primary key from the above list of fields. (1)

d) A separate table holds information about suppliers. Which field in the spare parts table should be used to link the two tables together? (1)

The Computer Repair outlet has an online shopping website that allows buyers to view the list of parts available and make online orders. To improve user-friendliness, users are provided with product images which the web-designer has decided to store as compressed files.

e) Briefly describe **TWO** advantages of having an online shopping website. (2)

f) Why should images used within a website be saved in a compressed file format? (2)

g) Which image file format should be used to store the compressed images? (1)

h) Identify **TWO** design items you would include in the header of the website. (2)

i) Identify **TWO** design items you would include in the footer of the website. (2)

(Total: 18 marks)

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

2. This question is about Networking.

    a) What type of network connection do you suggest for the following: i) small office having four computers fixed in place, ii) a school using tablets? (2)

    b) Give **ONE** advantage and **ONE** disadvantage of the network connection types in part a). (4)

    c) What type of connection could be setup between a mobile and a computer for transferring images? Give **ONE** advantage. (2)
    (Total: 8 marks)

3. This question is about Computer Hardware.

    A primary school is considering providing electronic devices to facilitate classroom instruction and learning. The school administration needs to choose between desktop, laptop, or tablet computers.

    a) Highlight **ONE** advantage and **ONE** disadvantage of each of the following devices as regards school administration in the classroom:
       i)   desktop; (2)
       ii) laptop; (2)
       iii) tablet. (2)

    b) From the above list of devices, which will be the easiest for students to take home? Briefly explain why. (2)
    (Total: 8 marks)

4. This question is about Operating Systems and Processing modes.

    a) What is the purpose installing an Operating System on computer hardware? (1)

    b) Give **TWO** reasons why a GUI is more popular than a CLI for an administration clerk working in an office. (2)

    c) An airline booking system allows more than one user to access the system at the same time with bookings made by a user inputted and processed instantly.
       i) Why is it important that new bookings are inputted and processed instantly? (2)
       ii) Which term best describes a system where processing is instantly done as the data is inputted? (1)

    d) What type of processing should be used when processing large volumes of transactions that are offline? Briefly explain why. (2)
    (Total: 8 marks)

5. This question is about Video Conferencing.

   With the availability of 'high speed' Internet connections and hardware, video conferencing has become very popular in recent years.

   a) What is video conferencing? (1)

   b) Describe **TWO** hardware devices required for video conferencing. (2)

   c) Briefly list and explain **ONE** software application which allows video conferencing. (1)

   d) Why does video conferencing require a 'high speed' Internet connection and hardware? (1)

   e) How can video conferencing be of use in a school environment? (1)

   f) Give **TWO** valid reasons why many people still prefer the traditional face to face communication rather than using video conferencing? (2)

   (Total: 8 marks)

6. This question is about ICT in Science, Engineering and Human Computer Interaction (HCI).

   a) Write brief notes on the following:
      i) CAD;
      ii) Simulation;
      iii) Geographic Information System (GIS). (6)

   b) Briefly describe an emerging technology in HCI that can identify human verbal communication. Give an advantage of this technology. (2)

   (Total: 8 marks)

7. This question is about Website development.

   A technology enthusiast wishes to develop a website hosting technology news and a forum. A friend has recommended registration of a domain name as a first step. The technology enthusiast also wishes to learn HTML and CSS basics to be able to carry out the project.

   a) What is a domain name? Give **ONE** reason for creating a domain name to publish a website. (2)

   b) Explain the terms HTML and CSS to the technology enthusiast. (2)

   c) Briefly explain **TWO** advantages of using CSS in website development. (2)

   d) Explain how an online tool could be useful for bringing together a group of people sharing a common interest. Give an advantage of this tool. (2)

   (Total: 8 marks)

SECTION B: HUMAN COMMUNICATION & BUSINESS ORGANISATION

Answer question 1 and ONE other question from this section.

1. **This question is compulsory**.

   A photo studio company, owned by a professional photographer, makes use of various technologies for Digital Image Processing and Visual Communication.

   a) Briefly describe **TWO** examples of Visual Communication. (2)

   b) Explain **TWO** tools found in modern Digital Image Processing software, which the photographer may find useful to edit photos. (4)

   c) Describe **ONE** Internet utility that you would recommend to the photographer for advertising the photo studio services with a large number of potential customers living in the same country. (2)

   d) The photographer needs an internal communications tool to quickly talk with employees working from other rooms or even from home. Which tool would you recommend? Give **ONE** reason for your answer. (2)

   (Total: 10 marks)

Answer ONE question from 2 and 3.

2. a) Give brief explanations of any **THREE** functional areas in a business organisation. (3)

   b) Explain why in a small organisation some functional areas may be integrated together. (1)

   c) What is an Organisational Chart? Give **ONE** reason for its usefulness to the organisation. (2)

   d) What are the duties and responsibilities of the personnel working within any **TWO** functional areas described in part (a)? (4)

   (Total: 10 marks)

3. a) Identify **TWO** factors which lead to change within an organisation. (2)

   b) Why is the introduction of a new information system frequently considered as an example of change which needs to be well managed? Give **TWO** reasons. (2)

   c) Resistance to change can block the successful implementation of a new IT system. Identify any **TWO** possible causes that can cause resistance to change in such a scenario. (2)

   d) Suggest any **FOUR** actions which may be employed by the management to overcome resistance to change mentioned in part (c). (4)

   (Total: 10 marks)