

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION EXAMINATION
INTERMEDIATE LEVEL
SEPTEMBER 2015

SUBJECT:	INFORMATION TECHNOLOGY
DATE:	5th September 2015
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) The following scenario models a soccer team and the players in the team. Design an E-R diagram to capture the following:
- i. Each team has a TID (unique identifier), name, main stadium, and a city (where the team is based).
 - ii. Each player has a number (unique identifier), name, DOB and the player's shirt number.
 - iii. Each team has several players and each player belongs to one team. **[5 marks]**
- b) What type of *relationship* do the *Player* table and *Team* table have? **[2 marks]**
- c) What validation rule should be implemented on the *DOB* (*date of birth*) if the management would like athletes to be between 13 and 15 years of age (inclusive)? **[2 marks]**
- d) Describe how the database tables can be populated through a web application. **[2 marks]**
- e) What is the risk of including the email address as plain text in the Contact Us page? **[2 marks]**
- f) Why should web designers consider bandwidth when optimizing images for a website? **[3 marks]**
- g) What are *META Tags*? **[2 marks]**

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

Question A2

This question is about *Data Validation*

- a) What is the difference between *Data Validation and Data Verification*? [4 marks]
- b) Briefly describe *one validation check*. [2 marks]
- c) Why is it important to have accurate and valid data? [2 marks]

Question A3

This question is about *Networks*

- a) Define the following *wired communications media terms*
 - i. Fibre Optic;
 - ii. Twisted Pair;
 - iii. Coaxial. [6 marks]
- b) Differentiate between *Serial and Parallel Transmission*. [2 marks]

Question A4

This question is about the *Health and Safety*

- a) Identify *two* potential health hazards threats when using the computer for a very long period of time. [4 marks]
- b) Explain how an ergonomic environment can help reduce these threats. [4 marks]

Question A5

This question is about *e-Learning*

- a) Define *e-Learning*. [2 marks]
- b) Give *three* advantages of *e-Learning* compared to classroom based learning. [3 marks]
- c) Provide *three* ways how a *Learning Management System* can help teachers. [3 marks]

Question A6

This question is about *System Development*

- a) Describe the *Waterfall Model*. [3 marks]
- b) What is meant by *TELOS*? [3 marks]
- c) Explain the term *Acceptance Testing*. [2 marks]

Question A7

This question is about *Internet Security*

- a) Describe what is meant by *Internet Fraud*? Provide *two* examples. [4 marks]
- b) Differentiate between *Malware* and *Viruses*. [2 marks]
- c) What are *Digital Certificates*? [2 marks]

Section B: HUMAN COMMUNICATION & BUSINESS ORGANISATION

Answer question B1 and One other question from this section

Question B1

This question is compulsory.

- a) What is meant by the term *delegation of authority*? [2 marks]
- b) List any *two* obstacles that one may encounter in the delegation process. [4 marks]
- c) Mention *two* ways in which a manager could counter\avoid such problems. [4 marks]

Answer ONE question from B2 and B3

Question B2

This question is about *The Internet as a Human Communication Medium*

Describe any *six internet utilities* that can be used as human communication tools. Show how one can use the services mentioned in a business both in internal and external communication. [10 marks]

Question B3

This question is about *Managing Change*

Explain why organisations need both change and stability. What causes resistance to change? List and explain three steps managers may take to reduce resistance to change. [10 marks]