DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2012

Tra

FORM 5 (Option) COMPUTER STUDIES TIME: 1h 45min

Name: _____ **Class: _____**

Directions to Candidates:

*Answer **ALL** questions in **Section A** and **Section B** on this paper;*
The use of flow chart template is permitted;
*Calculators are **NOT** allowed;*
Good English and orderly presentation are important.

For office use only:

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Paper Total	Course Work	Final Mark
Max	5	5	5	5	5	5	5	5	5	5	5	15	15	85%	15%	100%
Mark																

Section A - Answer all Questions

1 Write whether the following statements are True (**T**) or False (**F**):

i. A **general-purpose** computer is intended to do one task only: _____

ii. **Mobile phones** are considered as general-purpose computers: _____

iii. An **embedded system** is a computer system designed to do one or a few dedicated functions: _____

iv. **Dedicated computer** systems need special software to function properly: _____

v. **DVD** players are dedicated computer systems: _____

[5]

2 (a) Convert:

i. The hexadecimal number ***A2*** to **binary**.

ii. The hexadecimal number ***1D*** to **decimal**.

iii. The decimal number ***70*** to **hexadecimal**.

A2 = _____

1D = _____

70 = _____

Working Space

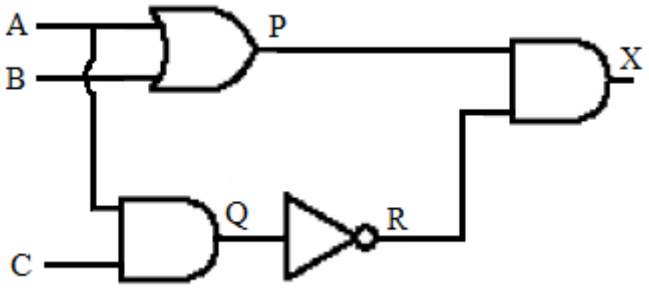
[3]

(b) What is the largest **unsigned decimal** number an 8-bit register can hold?

Answer: _____

[2]

3 Study the logic circuit and complete the **truth table** overleaf:



Truth table:

A	B	C	P	Q	R	X
0	0					
0	0					
0	1					
0	1					
1	0					
1	0					
1	1					
1	1					

[5]

4 Using the words: **Organizers**, **DTP**, **Image editing**, **CAD** and **Multimedia**, fill in the table below.

i.	Generic software that includes a combination of text, audio, still images, animation and video:	
ii.	The process of altering/modifying a digital image on a computer:	
iii.	A small sized computer, often with an in-built diary application and few other functions such as an address book:	
iv.	Software used for the creation of a house plan:	
v.	The creation of documents, such as a flyer, using a page layout software on a computer:	

[5]

5 (a) Different I.T.-related personnel have different roles in their duties. Three types of persons working in an I.T. environment are: **Systems Analyst/Designer**, **Computer Operator** and **Computer engineer**. Which **person** from the given list does the following **tasks**?

i. Sets up a computer system: _____

ii. Loads printer with paper: _____

iii. Defines the I/O requirements of a new system: _____

[3]

(b) Computers in society have both their negative and positive effects. Name an advantage and a disadvantage of computers in **medicinal diagnosis**.

Advantage: _____

_____

Disadvantage: _____

_____

[2]

6 The **Data Protection Act** became law in Malta in 2001. Write whether the following statements concerning this Act are True (**T**) or False (**F**):

i. The Act ensures that personal data is processed fairly and lawfully: _____

ii. Anyone can collect personal data for any reason: _____

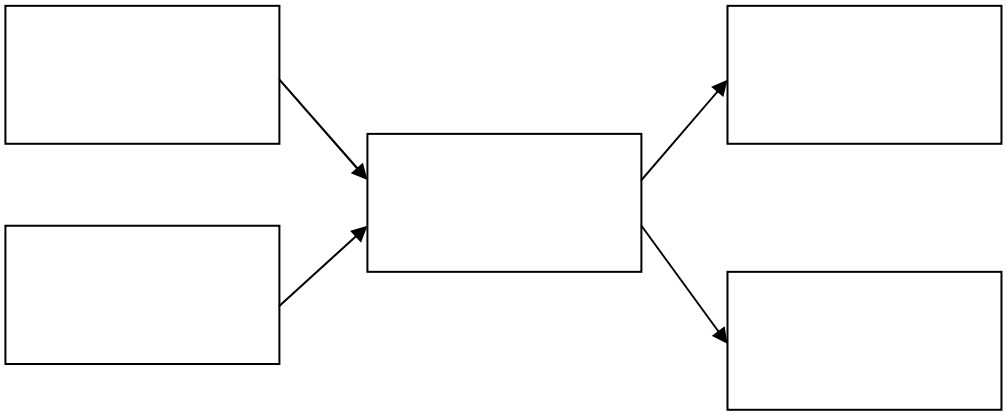
iii. Data collected must be correct and up to date: _____

iv. This law applies only for public sectors: _____

v. If data is found to be incorrect with regards to its processing purpose, it must be corrected or erased: _____

[5]

7 Generations of files is used to describe the **backup** process. The diagram below shows how files are generated. Fill in the boxes by using the following terms: **Updating Program**, **New Master File**, **Master File**, **Error Report** and **Transaction File**.



[5]

8 (a) A **modem** is required so that *computers* communicate to one another over long distances. Fill in the missing words below which concerns modems.

When a user is **sending** information from one place to another, the modem converts this data from _____ to _____ so that the end-user can receive it in his/her computer.

[2]

(b) **Videoconferencing** is a conference between two or more users at different sites by using computer networks. From the following list given choose the **three** most important input/output devices which are needed for videoconferencing: webcam, printer, mouse, microphone, scanner, speakers.

1st device: _____

2nd device: _____

3rd device: _____

[3]

9 (a) Distinguish between:

i. compilers and interpreters

ii. compilers/interpreters and assemblers

iii. source code and executable code

i. **Answer:** _____

_____

ii. **Answer:** _____

_____

iii. **Answer:** _____

_____

[3]

(b) High level languages are said to be problem-oriented while low level languages are machine-oriented. Give **two** reasons why programmers nowadays prefer to program using a high level language rather than a low level language.

1st reason: _____

_____

2nd reason: _____

_____

[2]

10 (a) Software can be divided into **system software** and **application software**. Briefly explain the difference between the two types of software.

System: _____

_____

Application: _____

_____

[2]

(b) i. State whether **utility software** is system or application software.
ii. Give **two** examples of utility software.

Utility software: _____

_____

Example 1: _____

Example 2: _____

[3]

11 For each statement below give the most suitable **input** or **output** device.

i.	Reads the digital data on an item in a supermarket:	
ii.	A device that can produce carbon copies:	
iii.	Very useful to print designs created by CAD applications:	
iv.	Every user needs it to type documents:	
v.	Used to facilitate the entry of data in the processing of cheques:	

[5]

Section B – Answer BOTH Questions

12 Each of the statements below describes a programming problem. Below each problem is a set of incomplete Pascal instructions to solve the problem. Complete the instructions.

(a) Ask the user to input a Real number ***X*** and output the **integer** part stored in variable ***Y***.

```
_____ ('Enter number: ');

_____ (X);

Y := _____(X);

_____(Y);
```

[3]

(b) Declare a constant ***pi*** (π) equal to 3.143. Ask the user to enter the radius ***r*** of a circle and store the area of the circle in variable ***A***. Then outputs the area with 2 decimal places.
(Area of circle = π r^2. Use the built-in mathematical functions where necessary.)

```
_____

  pi = 3.143;

Begin

  Write('Enter radius: ');

  _____;

  A := pi*_____;

  Writeln('The Area is: ', A:_____);

End.
```

[4]

(c) Ask the user to enter his/her ***age***, if the age is less than 18 the message '***You cannot drive***' is output. Use a **While** loop to terminate the execution until the age of 18 or more is given.

```
age:=0;

_____ age _____ Do

_____

  Write('Enter age: ');

  Readln(_____);

  If _____ 18 Then Writeln('You cannot drive.');

End;
```

[5]

(d) Ask the user to enter his/her name and store it in variable ***name***. Then the **am** of characters of his/her name is output.

Write('Enter your name: ');

_____;

amount := _____(name);

Writeln('Amount of characters in your name is: ', _____); *1*

[3]

13 (a) Briefly describe what **Systems Analysis** is?

_____

_____

_____

[1]

(b) The following are the seven stages of Systems Analysis not in the correct order: **Present system study and analysis**; **Project selection and feasibility study**; **System maintenance; Implementation and changeover methods**; **Programming and documentation**; **Control and review** and **Design of new computerised system**.

i. Write the seven stages of Systems Analysis in the correct order.
ii. For each stage say briefly what is done.

i. **Stage 1:** _____

Stage 2: _____

Stage 3: _____

Stage 4: _____

Stage 5: _____

Stage 6: _____

Stage 7: _____

ii. **Stage 1:** _____

_____

_____

Stage 2: _____

_____

_____

Stage 3: _____

_____

_____

Stage 4: _____

_____

_____

Stage 5: _____

_____

_____

Stage 6: _____

_____

_____

Stage 7: _____

_____

_____

_____ [14]