DEPARTMENT FOR CURRICULUM,
LIFELONG LEARNING AND EMPLOYABILITY
Directorate for Learning and Assessment Programmes
Educational Assessment Unit

Annual Examinations for Secondary Schools 2022

YEAR 9 COMPUTING TIME: 1h 30min

Directions to candidates:
Answer ***ALL*** questions on this paper.
The use of a flow chart template is permitted.
Calculators are ***NOT*** allowed.

Good English and orderly presentation are important.

For office use only:

QUES	1	2	3	4	5	6	7	8	Paper Total	Course Work	Final Mark
MAX	8	10	10	7	11	8	17	14	85%	15%	100%
MARK											

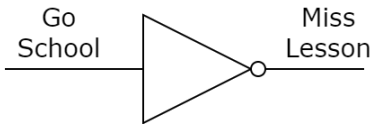
1. State whether the following statements are **true** or **false**.

	Statement	True/False	
a.	16 bits make 1 byte.		[1]
b.	FTP is a protocol used to download files from the Internet.		[1]
c.	Active and running programs are held in a Hard Disk Drive.		[1]
d.	An email browser is used to search for information online.		[1]
e.	Calculator is a system software.		[1]
f.	Compression software is used to process data in the form of cells.		[1]
g.	Format utility software is used to check your hard disk for errors.		[1]
h.	ADC is required to convert sound captured by a microphone and inputted into a digital device.		[1]

2. Peripheral devices facilitate the human-computer interaction process. For each of the following mention one appropriate device for each specific task.

	Task	Device	
a.	To listen to the sound of animated movies:		[1]
b.	To select options on a smartphone:		[1]
c.	To print a hardcopy of a word-processed document:		[1]
d.	To facilitate the drawing of vectored graphic logos:		[1]
e.	To record voice over an interactive presentation:		[1]
f.	To verify and validate bank cheques:		[1]
g.	To follow an online lesson on MS Teams without disturbing others:		[1]
h.	To facilitate the purchase of goods at a POS terminal:		[1]
i.	To convert a hardcopy document into digital form:		[1]
j.	To play video games on a PC:		[1]

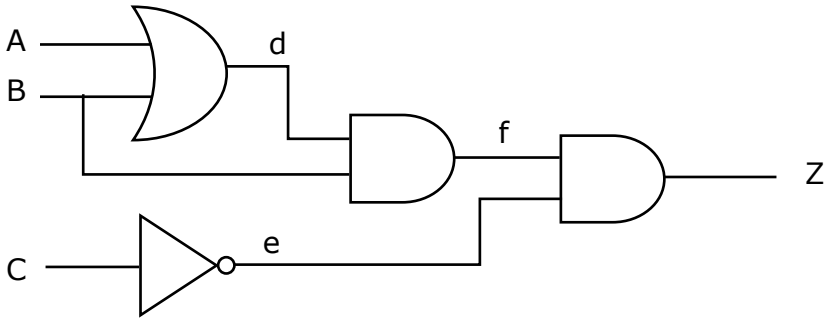
3. a. Suggest whether AND, OR, or NOT Gate should be used for the following typical scenarios. For each, include the symbol, the inputs, and the output. *The first one is done as an example.*

	Scenario	Logic Gate
	If I do not go to school, I will miss an important Computing lesson.	
i.	I can watch TV, if I do my HW and read for thirty minutes.	
ii.	I can go to school either by bus or on foot.	

[3]

[3]

b. Consider the following logic circuit diagram and complete the truth table shown below:



A	B	C	d	e	f	Z
0	0	0				
0	0	1				
0	1	0				
0	1	1				
1	0	0				
1	0	1				
1	1	0				
1	1	1				

[4]

4. The Malta Information Technology Agency (MITA) is the government agency that manages the eGovernment services and stores all data related to government departments and provide information to citizens.

a. What is the difference between Data and Information?

[1]

b. Mention **ONE** example of Data and **ONE** example of Information.

[2]

c. MITA employs several persons with special needs and invested in several special purpose Input/Output devices for assistance.

i. Name **ONE** special purpose hardware device to help with the inputting of data by persons with special needs. Explain its use.

[2]

ii. Name **ONE** special purpose software to help with the inputting of data by persons with special needs. Explain its use.

[2]

5. In tennis, the average speed of a first serve is usually around 195 km/h. The ball speed is calculated using a digital radar gun which includes a motion sensor to detect ball direction and speed, and a small monitor to display the speed.

a. The radar gun uses 8-bit registers to process the motion sensor readings in binary and when processed, it stores the serving ball speed in hexadecimal.

i. How is the average ball speed (195_{10}) represented in binary? *Show your working.*

[1]

ii. How is the average ball speed (195_{10}) stored in hex? *Show your working.*

_____

_____

_____ [1]

iii. During a tennis game, the radar gun calculated the highest ball speed to be 11010010_2. What speed was shown on the radar gun monitor? *Show your working.*

_____

_____

_____ [1]

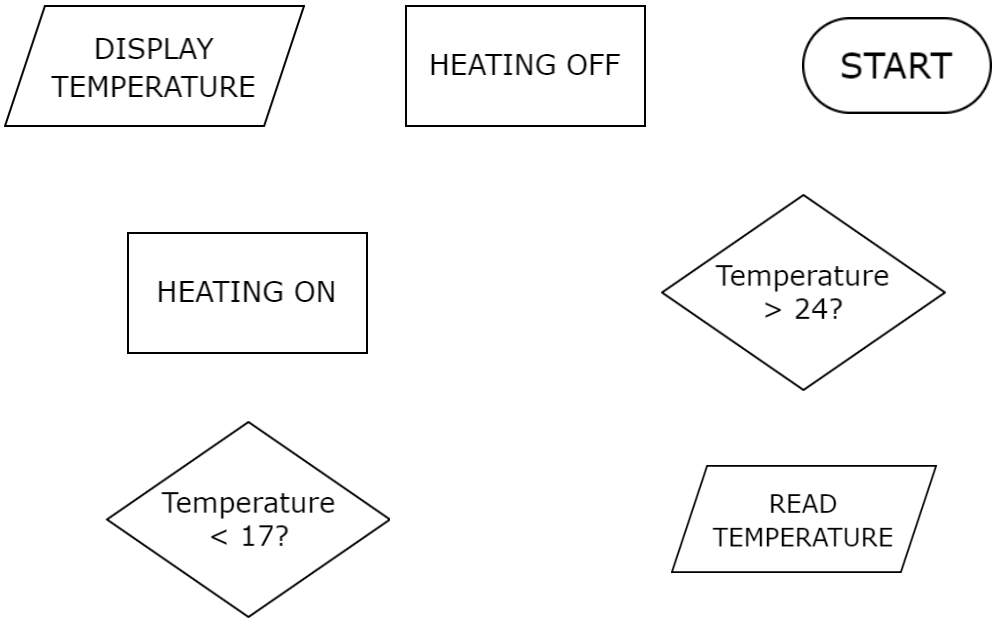
b. Mention **ONE** analogue component and **ONE** digital component inside the radar gun.

Analogue Component: _____ [1]

Digital Component: _____ [1]

c. Inside an indoor tennis court, a temperature control system has been recently installed. If the temperature is less than 17°C, the heating function is turned on and stops until it reaches 25°C.

By using the flowchart symbols below, draw the flowchart for the heating system.



Flowchart here

[6]

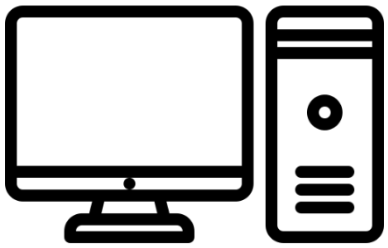
6. The Malta Airforce invested in a flight simulator to train pilot cadets flying military airplanes. They are required to access the flight simulator from a restricted authorised website. Use the following keywords to fill in the blanks of the passage shown below.

Favourites	**password**	**URL**	**HTTPS**
username	**web browser**	**log in**	**homepage**

New pilot recruits can access the online flight simulator by using a _____. They can either follow a hyperlink from the _____ or by entering a specific _____ in the address bar. This secured website uses an _____ protocol, and a valid _____ and _____ are required to _____. For future reference the website address can be added in the _____ folder.

[8]

7. Analyse the specifications of a computer used by a graphic designer.



Intel Core i9 5.2GHz	8 GB DDR4 RAM
1 TB Hard Disk	Windows 10

a. What is the speed of the CPU in MHz?

_____ [2]

b. What is the storage capacity?

_____ [1]

c. What is the memory size of this computer?

_____ [1]

d. Mention **TWO** characteristics of RAM.

_____

_____ [2]

e. How is ROM different from RAM?

_____

_____ [1]

f. Mention **ONE** use of ROM in a computer.

_____

_____ [1]

g. Which Operating System is this computer using?

_____ [1]

h. Which type of printer do you suggest having for this specific scenario? Give **ONE** reason for your answer.

_____

_____ [2]

i. Logos and advert material are generally created using vector graphics. Mention **ONE** advantage of using vector over raster graphics.

_____

_____ [1]

j. A vector logo graphic occupies 2048KB of memory space. What is this size equivalent in MB?

[1]

k. The computer has a folder which is storing several logo graphic images occupying 120MB of space. Suggest **ONE** storage device to back up these images.

[1]

l. Mention and explain the use of **ONE** utility software that is important in maintaining the performance of the computer.

[2]

m. Mention **ONE** feature of the operating system that provides short-term storage and transfer of text and graphics within, and between, different application programs.

[1]

8. A gardening shop uses a database for its stock control system. One of the tables is called **Plants** as shown below.

Plant no.	Name	Care	Indoor	Price EUR
130	Yucca	Sun, sun, and more sun.	No	28.00
128	Agloenema Chinese Evergreen	Can withstand excess water.	Yes	16.99
132	Asparagus Fern	Adapts to both bright spots and darker corners.	Yes	13.99
135	Chinese money plant	Grows best in a shady spot with weekly watering.	Yes	12.99
133	Jade Plant	Position it in a sunny window and water when the soil feels dry.	Yes	6.00

a. Suggest which field should be the primary key.

[1]

b. By which column (field) is the above table sorted?

[1]

c. What data type is the **Indoor** column (field)?

[1]

d. Why is it suggested that the data type of the **Plant No.** field is Text?

[1]

e. Another table in the database is called Suppliers as shown below. The suppliers supply the shop with different plants, but the shop purchases a particular plant from only one supplier.

Supplier no.	**Supplier name**	**Contact No.**
202	Gardening Supplies	99889988
203	Awesome plants Ltd	79861234
204	Flowers and plants	99212123
205	Plants & More	99554433

i. Suggest how table Plants can be related (linked) to table Suppliers.

[2]

ii. What type of relationship exists between table Suppliers and Plants?

[1]

iii. Mention **ONE** other type of relationship besides the one mentioned in part e (ii).

[1]

f. The owner would like to keep track of the number of each plant in stock.

i. Suggest a suitable field to keep track of the number of plants.

[1]

ii. Suggest the data type for this field.

[1]

iii. Which table should include this field?

_____ [1]

g. Data from a database can be accessed Serially or Directly. Mention **ONE** difference between serial and direct methods of access.

_____

_____

_____ [1]

h. Which type of access method is recommended to access the information held in the gardening stock control system? Explain.

_____

_____

_____ [2]

--- END OF PAPER --

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