Pre-Leaving Certificate Examination, 2022

Computer Science

Section C

Ordinary Level

Time: 1 hour

80 marks

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Instructions

There is one section in this paper.

Section C	Programming	One question Answer all question parts	80 marks

Answer all parts of the question on your digital device.

Calculators may be used during this section of the examination.

The *Formulae and Tables* booklet cannot be used for this section of the examination.

The superintendent will give you a copy of the *Python Reference Guide*.

Ensure that you save your work regularly and when you complete each question part.

Save your files using the naming structure described at the beginning of each question part.

If you are unable to get some code to work correctly, you can comment out the code so that you can proceed. The code that has been commented out will be reviewed by the examiner.

Rough work pages are provided at the end of this booklet. Please note that this booklet is not to be handed up and will **not** be reviewed by an examiner.

At the end of the examination it is your responsibility to ensure that you have saved all of your files onto your external media.

Do not hand this paper up

Section C	Programming	80 marks

Answer all question parts.

Question 16

(a) Open the program called **Question16_A.py** from your device.
The source code is shown and described briefly below.

Before making any changes, you should save your working copy of the file using the format **StudentNameQuestion16_A.py**. For example, you would save the file as **MaryMurphyQuestion16_A.py** if your name was Mary Murphy.

Enter your Name and School in the space provided on **line 2** in your Python file.

Vaccines against the SARS-2 (Covid-19) virus have helped to overcome the pandemic. Age was the main factor that determined which type of vaccine a person received during the vaccine rollout.

Vaccine Type	Age Group (years)
MRNA	12 – 49
ADENO	50+

Table 1

Table 1 shows the types of vaccines available and the age groups they are suitable for.

The program below is for a vaccine registration portal. When Jack Saunders enters his name, a message appears saying "Hello, Jack Saunders".

```
1  # Question 16(a)
2  # Name and School:
3
4  s_name = input("Enter your surname: ")
5  f_name = input("Enter your first name: ")
6  print("Hello", f_name, s_name)
```

Make the following changes to the program:

(i) Amend the program to allow Jack to enter his age. He is 42 years old.

When the program is run the output may look as follows:

```
Enter your surname:             Saunders
Enter your first name:          Jack
Enter your age:                 42
Hello Jack Saunders you are 42 years old
```

(ii) Amend the program using the information given in **Table 1** so that it tells Jack which vaccine he will receive.
When the program is run the output may look as follows:

```
Enter your surname:            Saunders
Enter your first name:         Jack
Enter your age:                42
Hello Jack Saunders you are 42 years old
Jack, you will receive the MRNA vaccine
```

(iii) Jack needs to input his Eircode (K78 E625) in order to be assigned to a vaccination centre. Eircodes ending with an odd number are assigned to Northfield and those ending with an even number are assigned to Eastwood.
Amend the program so that Jack is assigned to the correct vaccination centre.
When the program is run the output may look as follows:

```
Enter your surname:            Saunders
Enter your first name:         Jack
Enter your age:                42
Enter your Eircode:            K78 E625
Hello Jack Saunders, you are 42 years old and your
Eircode is K78 E625
You must attend Northfield for your vaccine
Jack, you will receive the MRNA vaccine
```

(iv) Using a **`while`** loop or similar, amend the program to give Jack the option to register another person. The code should terminate when you enter the word 'END' or allow you to enter the details for Mary Saunders, 65 years old, Eircode K66 E644.
When the program is run the output may look as follows:

```
Enter your surname:            Saunders
Enter your first name:         Jack
Enter your age:                42
Enter your Eircode:            K78 E625
Hello Jack Saunders, you are 42 years old and your
Eircode is K78 E625.
You must attend Northfield for your vaccine
Jack, you will receive the MRNA vaccine
If you have finished entering people's details type
'END', otherwise press RETURN:
Enter your surname:            Saunders
Enter your first name:         Mary
Enter your age:                65
Enter your Eircode:            K66 E644
Hello, Mary Saunders, you are 65 years old and your
Eircode is K66 E644.
You must attend Eastwood for your vaccine
Mary, you will receive the ADENO vaccine
```

(v) Jack wants to enrol in a vaccine trial. Amend the program to ask Jack if he agrees to enrol in a vaccine trial and to randomly assign one of the three super vaccines (A, B, C) to him. (Hint: create a list containing A, B, C and use **`import.random`** and **`random.choice`**).
When the program is run the output may look as follows:

```
Enter your surname:            Saunders
Enter your first name:         Jack
Enter your age:                42
Enter your Eircode:            K78 E625
Do you agree to enrol in a vaccine trial?
Type 'Yes' or 'No'             Yes
Hello Jack Saunders, you are 42 years old and your
Eircode is K78 E625
You must attend Northfield for your vaccine
You are now enrolled in the trial to receive Super
vaccine B
If you have finished entering people's details type
'END', otherwise press RETURN:
```

Save your file using the format **StudentNameQuestion16_A.py**. For example, you would save the file as **MaryMurphyQuestion16_A.py** if your name was Mary Murphy.

(b) Find the median of the following list of numbers, without using an in-built Python function:

```
List 1 = [4, 5, 9, 8, 10, 17, 99, 77]
```

Save your file using the format **StudentNameQuestion16_B.py**. For example, you would save the file as **MaryMurphyQuestion16_B.py** if your name was Mary Murphy.

Space for rough work.

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