Pre-Leaving Certificate Examination, 2023

Computer Science

Section C

Ordinary Level

Time: 1 hour

80 marks

Do not hand this question paper up.

This document will not be examined
and it will not be returned to you.

Instructions

There is one section in this paper.

Section C	Programming	One question	80 marks
		Answer all question parts	

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.

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.

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 **PatMurphyQuestion16_A.py** if your name was Pat Murphy.

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

```
1   # Question 16(a)
2   # Name and School:
3
4   flight_num = "EI121"
5   destination = "Orlando"
6   num_ppl = 7
```

The program above is for a booking system for an airline. The aim of the program is to
confirm flight details and cost for a group travelling to Orlando. The user will choose a flight
and confirm the destination and the number of people (including children) travelling in the
group. The program will output a message confirming the flight details and cost for the
travel group.

Make the following changes to the program:

(i)   Amend the program to allow the variables **flight_num** and **destination** to
accept any string and to allow the variable **num_ppl** to accept an integer value.

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

```
Enter your flight number:       EI121
Enter your destination:         Orlando
Enter the number of people in the travel group:   7
```

This question continues on the next page.

(ii) Amend the program so that it prints the values of the three variables in part **(i)**.

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

```
Enter your flight number:      EI121
Enter your destination:        Orlando
Enter the number of people in the travel group:    7
Your flight number is EI121
You are travelling to Orlando
There are 7 people in the travel group
```

(iii) The price of a return flight to Orlando is €520. Adjust the code so it calculates the total cost of the flights. (Hint: use the unicode \u20ac to create a euro symbol.)

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

```
Enter your flight number:      EI121
Enter your destination:        Orlando
Enter the number of people in the travel group:    7
Your flight number is EI121
You are travelling to Orlando
There are 7 people in the travel group
The total cost of your flights is €3640
```

(iv) The airline offers a second flight, EI125, to Orlando. This flight is cheaper, at €400, but involves a stopover, making the journey longer. Adjust the code so that when you enter either flight number it will calculate the correct fare for your group.

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

```
Enter your flight number:      EI125
Enter your destination:        Orlando
Enter the number of people in the travel group:    7
Your flight number is EI125
You are travelling to Orlando
There are 7 people in the travel group
The total cost of your flights is €2800
```

This question continues on the next page.

(v) Some people will mistakenly use lowercase 'ei' instead of uppercase 'EI' when entering their flight number. Adjust the code to cope with this possible error.

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

```
Enter your flight number:       ei121
Enter your destination:         Orlando
Enter the number of people in the travel group:    7
Your flight number is ei121
You are travelling to Orlando
There are 7 people in the travel group
The total cost of your flights is €3640
```

(vi) The airline offers a discount of €50 per child on flights to Orlando.
There are 3 children travelling in the group of 7. Adjust the code to allow you to enter the number of children and output the price based on these details.

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

```
Enter your flight number:       EI121
Enter your destination:         Orlando
Enter the number of people in the travel group:    7
Enter the number of children in the travel group: 3
Your flight number is EI121
You are travelling to Orlando
There are 7 people in the travel group
The total cost of your flights is €3490
```

Save your file using the format **StudentNameQuestion16_A.py**. For example, you would save the file as **PatMurphyQuestion16_A.py** if your name was Pat Murphy.

This question continues on the next page.

(b) Open the program called **Question16_B.py** from your device.

```
1   # Question 16(b)
2   # Name and School:
3
4   flight_number =
```

Before making any changes, you should save your working copy of the file using the format **StudentNameQuestion16_B.py**. For example, you would save the file as **PatMurphyQuestion16_B.py** if your name was Pat Murphy.

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

You can fly direct (non-stop) or indirect (with a stopover) to Orlando.
Flights that end with the number 2 fly direct.
Flights that end with the number 5 fly indirect.

The flight numbers are: 122, 125, 132, 135, 155.

Adjust the code so that when you input each of these numbers they are sorted into direct or indirect flights.

Save your file using the format **StudentNameQuestion16_B.py**. For example, you would save the file as **PatMurphyQuestion16_B.py** if your name was Pat Murphy.

Space for rough work.

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