

Name: _____

Date: _____

2 A computer program will store data about trees.

The user can enter their requirements for a tree and a suitable tree will be selected.

The program is written using object-oriented programming.

The class `Tree` stores data about the trees.

Tree	
<code>TreeName : STRING</code>	stores the name of the tree
<code>HeightGrowth : INTEGER</code>	stores the number of cm the tree will grow each year
<code>MaxHeight : INTEGER</code>	stores the maximum height in cm that the tree will grow
<code>MaxWidth : INTEGER</code>	stores the maximum width in cm that the tree will grow
<code>Evergreen : STRING</code>	stores whether the tree keeps its leaves as "Yes", or loses its leaves as "No"
<code>Constructor()</code>	initialises <code>TreeName</code> , <code>HeightGrowth</code> , <code>MaxHeight</code> , <code>MaxWidth</code> and <code>Evergreen</code> to its parameter values
<code>GetTreeName()</code>	returns the name of the tree
<code>GetGrowth()</code>	returns the number of cm the tree will grow each year
<code>GetMaxHeight()</code>	returns the maximum height in cm that the tree will grow
<code>GetMaxWidth()</code>	returns the maximum width in cm that the tree will grow
<code>GetEvergreen()</code>	returns whether the tree keeps its leaves or loses its leaves

(a) (i) Write program code to declare the class `Tree` and its constructor.

Do **not** declare the other methods.

Use the appropriate constructor for your programming language.

All attributes must be private.

If you are writing in Python, include attribute declarations using comments.

Fill in the blank

2(a)(i)

class `Tree`:

```
def __init__(self, TreeName, HeightGrowth, MaxHeight,  
MaxWidth, Evergreen):
```

```
self.__TreeName = TreeName      #String
self.__HeightGrowth = HeightGrowth #Integer
self.__MaxHeight = MaxHeight    #Integer
self.__MaxWidth = MaxWidth      #Integer
self.__Evergreen = Evergreen    #String
```

(a)(ii)

```
def GetTreeName(self):
    return self.__TreeName
```

```
def GetHeightGrowth(self):
    return self.__HeightGrowth
```

```
def GetMaxHeight(self):
    return self.__MaxHeight
```

```
def GetMaxWidth(self):
    return self.__MaxWidth
```

```
def GetEvergreen(self):
    return self.__Evergreen
```

1 A computer game is designed for users to select characters. Each character can take part in a group of events. Each group has five events. There are four types of event: jump, swim, run, drive.

The program is written using object-oriented programming.

(a) The class `EventItem` stores data about the events.

EventItem	
EventName : STRING	stores the name of the event
Type : STRING	stores the type of event, either: jump, swim, run or drive
Difficulty : INTEGER	stores the difficulty of the event from 1 (easiest) to 5 (hardest)
Constructor()	initialises EventName, Type and Difficulty to its parameter values
GetName()	returns the name of the event
GetDifficulty()	returns the difficulty of the event
GetEventType()	returns the type of event

(i) Write program code to declare the class `EventItem` and its constructor.

Do **not** declare the other methods.

Use your programming language's appropriate constructor.

All attributes must be private.

If you are writing in Python, include attribute declarations, using comments.

Save your program as **Question1_N24**.

Copy and paste the program code into part 1(a)(i) in the evidence document.

[4]

1 (a)(i)

class EventItem:

```
def __init__(self, EventName, Type, Difficulty):  
    self.__EventName = EventName      #String  
    self.__Type = Type                #String  
    self.__Difficulty = Difficulty    #Integer
```

```
# (a)(ii)
```

```
def GetName(self):  
    return self.__EventName
```

```
def GetDifficulty(self):  
    return self.__Type
```

```
def GetEventType(self):  
    return self.__Difficulty
```