

- 11** An object-oriented program is being written to store details of and play digital media files that are stored on a computer. A class **MediaFile** has been created and two subclasses, **VideoFile** and **MusicFile** are to be developed.

The classes **VideoFile** and **MusicFile** are related to **MediaFile** by single inheritance.

- 11 (a)** Explain what is meant by *inheritance*.

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(1 mark)

- 11 (b)** Draw an inheritance diagram for the three classes.

(2 marks)

- 11 (c)** One important feature of an object-oriented programming language is the facility to override methods (functions and procedures).

Explain what is meant by *overriding* when writing programs that involve inheritance.

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(2 marks)



**11 (d)** The **MediaFile** class has data fields **Title** and **Duration**.

The class definition for **MediaFile** is:

```
MediaFile = Class
    Public
        Procedure PlayFile
        Function GetTitle
        Function GetDuration
    Private
        Title : String
        Duration : Real
End
```

Note that the class does not have procedures to set the values of the variables as these are read automatically from data stored within the actual media file.

The **MusicFile** class has the following additional data fields:

- **Artist**: Stores the name of the band or singer that recorded the music.
- **SampleRate**: Stores the rate at which the music has been sampled.
- **BitDepth**: Stores the number of bits in which each sampled value is represented.

Write the class definition for **MusicFile**.

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(4 marks)

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**END OF QUESTIONS**



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