1 DCC Software is a company that creates a wide range of software products for home computers. Its products include image, video and sound editing software.

DCC software uses a database table called `TblSoftware` to store details about all of their products.

ProductID	Name	Type	Price
DCC01	DCCPhotos	Image	£129.99
DCC02	DCCDraw	Image	£119.99
DCC03	DCCAnimate	Image	£99.99
DCC04	DCCMovie	Video	£189.99
DCC05	DCCEffects	Video	£99.99
DCC06	DCCAudio	Sound	£119.99

`TblSoftware`

i. Write an SQL statement to insert this new product into `TblSoftware`:

ProductID:	DCC07
Name:	DCCCast
Type:	Sound
Price:	£89.99

[3]

ii. Write an SQL statement to return the `Name` of products that have a `Price` that is less than the `Price` of the product with the `Name` "DCCDraw".

You should use a nested SELECT statement in your answer.

[5]

2 A video streaming service uses a relational database. An extract of the data from two tables from this database is shown in Fig. 2.

`Membership` contains data about current memberships that customers hold and `package` contains data about different streaming packages available.

Username	FirstName	StartDate	PackageType
User001	Amaya	08/05/2016	Premium
User002	Amit	06/06/2019	Basic
User003	Tom	17/08/2019	Free
User004	Kareem	08/08/2017	Basic
User005	Sarah	25/03/2020	Premium

Membership

PackageType	CostPerMonth(£)	Adverts
Premium	12.99	false
Basic	7.99	true
Free	0.00	true

Package

Fig. 2

The `Adverts` field indicates if customers will be shown adverts. `true` indicates that customers will be shown adverts, and `false` indicates that adverts are not shown.

Write Structured Query Language (SQL) to return the `Username` and `FirstName` fields for all customers who see adverts.

[5]

3 Customers' details are stored in the flat file database table `Customer`. An extract of the table is shown below.

CustomerID	**Surname**	**Title**	**Phone**	**CarReg**
JJ178	James	Mr	(0121) 343223	DY51 KKY
HG876	Habbick	Miss	(01782) 659234	PG62 CRG
EV343	Elise	Mrs	(07834) 123998	HN59 GFR
PG127	Pleston	Mr	(07432) 234543	JB67 DSF

i. State what is meant by the term 'primary key', identifying the primary key in the table above.

[2]

ii. Write the SQL statement that would show only the `CustomerID` and `Surname` fields for customers with the `Title` "Miss" or "Mrs".

[4]

iii. Describe **one** problem that would arise with the flat file database structure if a customer wanted to insure more than one car at the same time.

[2]

iv. Describe how the flat file database structure could be altered to efficiently allow each customer to insure multiple cars at the same time. (You may assume each car is insured to only one customer.)

[5]

4(a) An airport holds details of flights in a database using the table `Flight`. An extract of the table is shown below.

FlightID	FlightNumber	DestinationCode	DestinationName	DepartureDate	DepartureTime
1355	OC0089	JFK	John F. Kennedy	03/07/18	09:50
1453	CS1573	LHR	Heathrow	03/07/18	10.30
1921	OC7750	JFK	John F. Kennedy	04/07/18	8.30
1331	AM0045	YHZ	Halifax	04/07/18	14.25
1592	HB0326	RTM	Rotterdam	04/07/18	19.10
1659	CS0123	LHR	Heathrow	04/07/18	07.20

Describe what the SQL statement below does.

```
SELECT FlightNumber FROM Flight WHERE DestinationCode='JFK'
```

[2]

(b) The airport cancels all its flights to Heathrow on 4th July 2018.

The SQL statement below shows all the data for flights going to Halifax. Rewrite it so it instead removes all flights to Heathrow on 4th July 2018.

```
SELECT * FROM Flight WHERE DestinationName='Halifax'
```

---

[3]

5(a) A company sells garden furniture. It has decided to create a relational database. A first, incomplete database design includes two tables PRODUCT and ORDER.

PRODUCT (ProductId, ProductType, Size, Price,…)
ORDER (OrderId, OrderDate, ProductId,…)

For example, the product which has ProductId 12345 is a large bench which has a price of £150.

A CUSTOMER table is added. An entity-relationship (E-R) diagram is shown.

Explain why this design would be inefficient for customers.

---

[2]

(b) Some of the Structured Query Language (SQL) for this database is

```
SELECT Surname, Title, PhoneNo
FROM CUSTOMER
WHERE Town = “Coventry”
ORDER BY Surname
```

Describe the purpose of this code and give **one** situation in which it may be used.

---

[5]

6 A database stores information about songs on a music streaming service.

One of the tables called `Song` has the fields.

```
Title, Artist, Genre, Length
```

A band called *RandomBits* removes their permission for their songs to be streamed.

The company removes all the songs belonging to *RandomBits* from their service.

i. Identify the law with which the company are complying.

---

[1]

ii. Write an SQL statement that will remove all songs by *RandomBits* from the table `Song`.

---

[2]

iii. When the songs have been removed, explain what must happen to the table `PlayListEntry` if the database is to retain its referential integrity. (You are not expected to write the SQL to do this).

---

[1]

END OF QUESTION PAPER