b) Explain what each of the following SQL statements would do when applied to the database *db*:

i. SELECT * FROM users [1]

.....

ii. SELECT UserName, Password FROM users ORDER BY UserName DESC [2]

.....

.....

iii. SELECT FirstName, LastName FROM users WHERE UserName = 'Bilbo33' [2]

.....

4. Consider the following table, 'Players', from an online fantasy role-playing game:

PID	GivenName	Surname	Character	Level	Race	Items
001	Alan	Smith	Alzabeck	32	Orc	Potion, Armour, Axe
002	Yvette	Jones	Thornzon	2	Dwarf	Armour, Sword
003	Ibrahīm	Hassan	Teylar	12	Dwarf	Staff, Potion
004	Lili	Yu	Axethorn	6	Human	Axe, Horse
001	Alan	Smith	Tamto	24	Elf	Potion, Horse

a) Create an entity definition for the above table. [2]

.....

b) What is the purpose of database normalisation? [2]

.....

.....

.....

c) Place this table into third normal form (3NF). You may assume that all character names are unique, and that race and items only need to be stored as attributes, and do not need tables of their own. Each PID is unique to a real person. [5]

Total marks = /24

4.10. Databases – Test 2

1. Consider the following entity description for a flat-file shop orders database.

   Order(OrderNum, CustNum,Title, FirstName, Surname, Address, PostCode, StockNum, StockName, Price, Manufacturer, OrderDate, OrderTime, Dispatched)

   a) Normalise the above database into 3NF by writing the entity descriptions for the new tables. You may assume at this stage that you only need to order one item at a time. [4]

   .....

   .....

   .....

   b) i. Identify the primary keys. [1]

   .....

   ii. State the purpose of a primary key. [1]

   .....

   iii. Identify the foreign keys and their location. [1]

   .....

   iv. State the purpose of a foreign key. [1]

   .....

   c) Draw an entity-relationship diagram for your database. [3]

d) Complete a data dictionary for your database, using the column headings below for each table.

Field	Data Type	Format	Validation Rule / Input Mask / Default Value	Key Field

Note that not all fields will have an entry for every column. You should aim to suggest at least one sensible validation rule or input mask or default value in each table. Under the Key Field column you can enter 'Primary', 'Foreign' or leave it blank as appropriate. [12]

e) Answer the following SQL questions based on the structure you have used in part d).

i. Write an SQL statement to return all information on every item of stock. [1]

.....

ii. Write an SQL statement to return the title, first name, surname and postcode of all customers in alphabetical order of surname. [2]

.....

.....

iii. Write an SQL statement to return a list of order numbers, dates and times of orders of every item that has not been dispatched. The list should be in ascending order of date ordered. [3]

.....

.....

f) i. Assuming a three-table structure has been used to represent the flat-file database described in this question, what restriction does this place on the database that would be an issue in the day-to-day running of a shop? [2]

.....

.....

.....

ii. Describe a possible solution to this problem. [2]

.....

.....

iii. Draw an entity-relationship diagram for your new structure. [4]

Total marks = /37

