

BCS Professional Certificate in Data Analysis

Specimen Paper A

Record your surname/last/family name and initials on the Answer Sheet.

Specimen paper only. 7 multiple-choice questions – 2 marks awarded to each question. Mark only one answer to each question.

There are no trick questions.

Pass mark is 26/40 for exam paper.

A number of possible answers are given for each question, indicated by either **A. B. C. or D.**

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- 1 The International Standard Book Number (ISBN) uniquely identifies a book. In a library, each individual physical book is allocated an accession number to make it unique. This is because the library might hold several copies (each with a unique accession number) of the same book (so all copies of that book have the same ISBN). Library members (borrowers) are given a unique identifier (borrower number) so that an individual borrower can be uniquely identified. Borrowers may be of different types (Students, Pensioners, Teachers, etc.) with each type uniquely identified by a code (for example; P for Pensioners). Authors are also given unique identifiers (author number). Authors can write more than one book.

Which of the following tables is **NOT** normalised?

- A Author number, author name, author address, author date of birth.
- B ISBN, book title, *author number.
- C Accession number, *ISBN, date purchased, book title.
- D Accession number, date loaned, time loaned, *borrower number, date due back.

- 2 Consider the following table:

ISBN, book title, *author name, date first published

If this table is normalised, what would **NOT** be permitted?

- A More than one ISBN.
- B Two books with the same book title.
- C A book with more than one author.
- D A first published date before the author was born.

Scenario One

This information describes a system to support the operations of an estate agent. The system must record information about properties. Properties are either commercial, residential or agricultural. Some common information is held about all types of property (for example; vendor, price, date first advertised). However, some information is specific to commercial properties (for example; conditions of use, VAT rate, counter facilities), some information is specific to residential properties (for example; number of bedrooms, garden size) and some is specific to agricultural properties (for example: soil type, acreage, use restrictions).

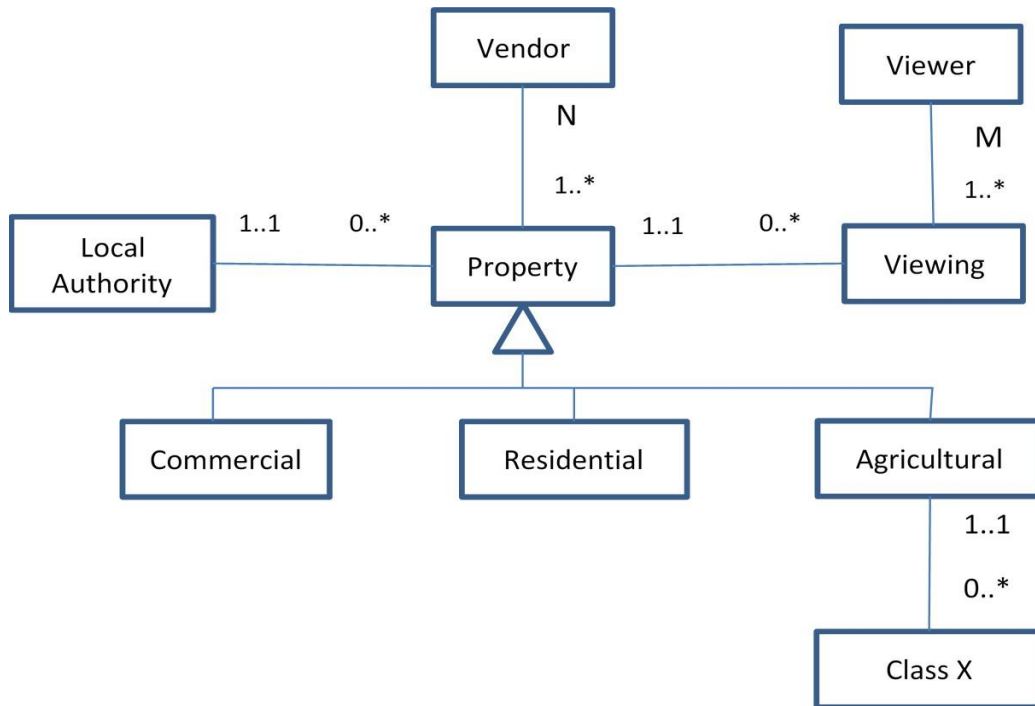
Agricultural properties (but not commercial or residential properties) may be subject to one or more easements (for example; a specific right of way or a specific right concerning flowing water). Each easement is specific to the agricultural property and so only relates to one, and only one, agricultural property.

Commercial properties are subject to commercial town planning restrictions and so the Local Authority of the commercial property needs to be specified. The estate agent would like a list of local authorities of which one could be allocated to a commercial property. A commercial property is allocated to one, and only one, Local Authority. A Local Authority may have one or many properties allocated to it. The list will also include Local Authorities that do not currently have a commercial property allocated to it.

Information has to be specifically held about the vendor(s) of the property. A vendor must be associated with at least one property, but they may be associated with many. Each property must have a minimum of one vendor and a maximum of four (the co-owners of a property).

All properties are subject to viewings. A property may be viewed many times. Information held about each viewing includes date and time of the viewing. Information is also to be stored about the Viewers. These are the people who requested and attended the viewing. Viewer information is only recorded once the viewing has taken place, so a viewer must have made at least one viewing, although of course they can make many. Each viewing must be made by one or more viewers.

A Business Analyst has constructed the following class diagram for this scenario.



3 What **SHOULD** the multiplicities be at point N in the diagram?

- A 0..1
- B 1..1
- C 0..4
- D 1..4

4 Which of the following would **NOT** be supported by the class model as it stands?

- A A vendor who has two properties to sell.
- B A viewer who has not viewed a property.
- C A property which has never been viewed.
- D A property viewed by a family group.

5 What is wrong with the relationship between Local Authority and Property?

- A The multiplicities should be 1..* at the Property end of the association.
- B It should not be there, Local Authority should link to the sub-type Commercial.
- C The multiplicities should be 0..* at the Local Authority end of the association.
- D It should not be there, Local Authority should link to the Vendor class.

- 6 Which of the following would be a suitable class name for the class currently represented as Class X on the diagram?
- A Easement.
 - B Agricultural Property.
 - C Agricultural Viewing.
 - D Estate Agent.
- 7 In a system to support the operations of a garage, what is the registration number E132 RTS an example of?
- A An entity type.
 - B An entity occurrence.
 - C An attribute type.
 - D An attribute occurrence.

-End of Paper-