

**ICT2622**

October/November 2017

**OBJECT-ORIENTED ANALYSIS**

Duration 2 Hours

90 Marks

**EXAMINERS**

FIRST

SECOND

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DR S SINGH

**Closed book examination**

**This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue**

This examination paper consists of 4 pages and a total of 8 questions

**INSTRUCTIONS**

- 1 Ensure that the question paper you have received consists of all 8 questions
- 2 Answer all questions on the answer book that you have received
- 3 Indicate the question number you are answering on the answer book clearly
- 4 Ensure that you fill in the correct module code and your student number on the answer book

**\*\*\* ALL THE BEST \*\*\***

**Question 1** [10]

- 1 1 Discuss the purpose of a system sequence diagram (SSD), and (2)
- 1 2 explain the symbols that are used in a SSD (8)

**Question 2** [10]

- 2 1 List, and (5)
- 2 2 briefly describe the five (5) parts included in the description of a Design Pattern (5)

**Question 3** [4]

Briefly describe the following types of classes

- 3 1 Controller classes (2)
- 3 2 Data access classes (2)

**Question 4** [1]

What information is provided by use cases or a use case diagram?

**Question 5** [9]

- 5 1 What are the three key parts of an entity relationship diagram (ERD)? (3)
- 5 2 Draw an ERD that shows
- a team has zero or more players
  - and each player is on one and only one team (4)
- 5 3 What is the difference between an ERD and a domain model class diagram? (2)

**Question 6** [16]

Consider the following narrative

*ExchangeToday.com Book Exchange is a type of e-business exchange that does business entirely on the Internet. The company acts as a clearinghouse for buyers and sellers of used books.*

*To offer books for sale, a person must register with ExchangeToday.com. The person must provide a current physical address and telephone number as well as a current e-mail address. The system then maintains an open account for this person. Access to the system as a seller is through a secure, authenticated portal.*

*A seller can list books on the system through a special Internet form. The form asks for all the pertinent information about the book: its category, its general condition and the asking price. A seller may list as many books as desired. The system maintains an index of all books in the system so buyers can use the search engine to search for books. The search engine allows searches by title, author, category and keyword.*

*People who want to buy books come to the site and search for the books they want. When they decide to buy, they must open an account with a credit card to pay for the books. The system maintains all this information on secure servers.*

Complete a fully developed use case description for the **Add Seller** use case

[TURN OVER]

## Question 7

[17]

Figure 1 below illustrates a partial class diagram for a property management company

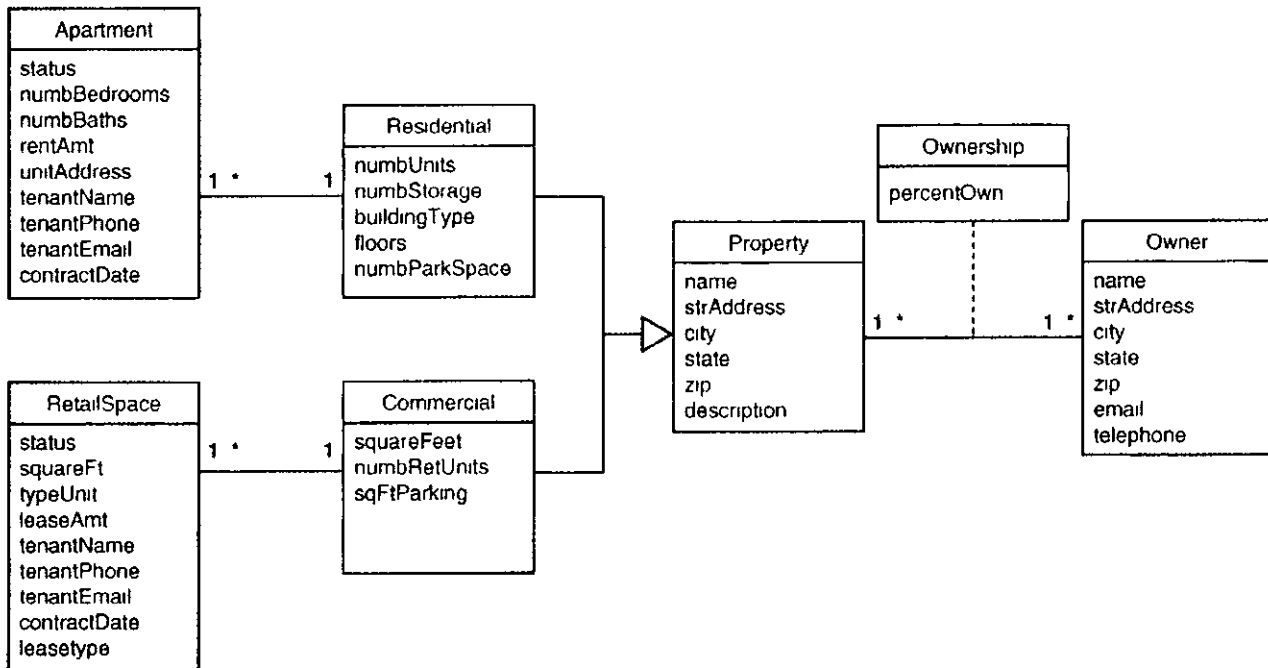


Figure 1 Partial class diagram for a property management company

Using the data in the class diagram, create a database schema. Please note that where it is necessary to indicate a primary key, underline the attribute, and where it is necessary to indicate a foreign key, use (FK) after the attribute

For instance

Table1	<u>primaryKey</u> , foreignKey (FK), attribute1, attribute2    attributeN
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[TURN OVER]

## Question 8

[23]

Figure 2 below shows a domain class diagram for a ticket-processing system based on four classes (**Officer**, **Ticket**, **Driver** and **Court**) which includes attributes, associations and multiplicity

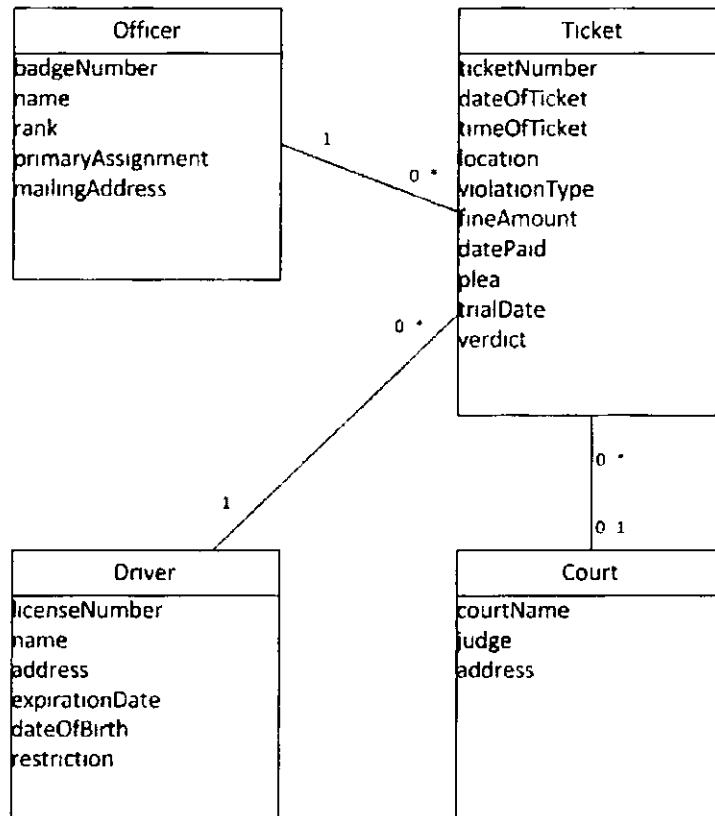


Figure 2: Domain class diagram for a ticket-processing system

8.1 Create a set of CRC cards showing these classes, responsibilities and collaborations (13)

8.2 Draw a design class diagram (DCD) based on your CRC cards. Include method names (10)