



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN INFORMATION AND COMMUNICATION TECHNOLOGY

EIT 4305 : ADVANCED OBJECT ORIENTED PROGRAMMING

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a.) i. What do we mean by the `getConnection()` method in the class `DriverManager` is a class member method? (2 marks)
- ii. What do we mean by the `getConnection()` method in the class `DriverManager` is overloaded? (2 marks)
- iii. How many variants of the `getConnection()` method exists in the `DriverManger` class? As you give, outline the variants of the `getConnection()` method in the class `DriverManager`. (4 marks)
- b.) Why are jars used with database connectivity in Java applications created in Java 7 and above? (2 marks)
- c.) i. Give the classes that can be used in accessing a serial file, from Java 5 onwards. (3 marks)
- ii. As you give in i., also give the Java API where those classes are defined. (1 mark)

- d.) Which exception do the classes that concern serial file access throw?
(1 mark)
- e.) i. Which interface do we use in handling events in Swing Desktop application?
(1 mark)
- ii. Which method of the interface do we need to override to implement the task for the event? Give the general form of the method required as you outline.
(3 marks)
- f.) Outline the steps that we can use to create a simple GUI desktop application.
(6 marks)
- g.) Which are classes that are important when creating menus in Swing desktop application?
(3 marks)

Question TWO

- a.) Distinguish between the following pairs of terms as used in flat files:
i. Binary and text file
ii. Serial and random file
(4 marks)
- b.) i. How are the two access modes used for flat files different?
(2 marks)
- ii. Can you do both modes at the same time with serial access files?
(2 marks)
- c.) What are disadvantages that are characteristic of serial access files.
(2 marks)
- d.) Write an application class that creates a named random access file called RandomReadWrite.txt in the current application directory, namely C:\Files. In addition, the application should also read and display the content of the file just written.
(10 marks)

Question THREE

- a.) Menus are a major component in GUI applications; they are start from the menu bar, then Menus, menu items and sub menu items in that hierarchy. Outline the classes that used to implement menus in Java, as you outline state the component that the class implements in menus.
(6 marks)

- b.) Write an application class that has two Menus, namely; File and Help. Each of this menu will have the following menu items, for File; it will have Open, Close, Exit menu items; whereas, for Help; it will have About, Reference menu items.
- (14 marks)

Question FOUR

- a.) Distinguish the following three types of applications:
- i. Single Document Interface(SDI)
 - ii. Multiple Document Interface (MDI)
 - iii. Tabbed Document Interface (TDI)
- (3 marks)
- b.) What is the importance of each of the following classes/interfaces to a multiple document interface application:
- i. DesktopManager
 - ii. JInternalFrame
 - iii. JDesktopPane
- (6 marks)
- c.) Which two Java APIs are important in creating a multiple document interface application?
- (2 marks)
- d.) Write an application class that creates an MDI application with one child class.
- (9 marks)

Question FIVE

- a.) i. What are the fundamental classes that are required in a Java application to access in a database?
- (4 marks)
- ii. As you outline, also give their respective method that is used in each to provide the access to a database.
- (4 marks)
- iii. In which Java API are these classes you outlined in i. are defined?
- (1 mark)
- b.) i. Which exception class is associated with the classes that access databases?
- (1 mark)
- ii. How can the exception mentioned in i. be handled?
- (2 marks)

- iii. What does the `printStackTrace()` method help in handling exception?
(1 mark)
- c.)
 - i. Outline the jars required to have Java application access a Microsoft Access database.
(5 marks)
 - ii. Which environment variable needs to be specified for the required jars you outlined in i. and why?
(2 marks)