

Examiner: A. Joy
Moderator: S. Zengeni

Instructions. If any of the instructions are disobeyed, candidates shall expose themselves to disqualification from future examinations.

General: All questions must be answered on the specified platform.

General: No instructions or directives of the invigilator shall be disregarded; if any of the instructions are disobeyed, candidates shall expose themselves to disqualification from future examinations.

General: Each candidate is expected to maintain academic integrity. Any form of plagiarism or cheating that is detected can lead to disciplinary measures being taken.

General: No explanation of the assessment questions may be asked or shall be given.

General: Late submissions will not be accepted without proof.

General: Candidates shall not communicate or attempt to communicate with anyone and candidates shall not conduct themselves in an improper or unseemly manner.

General: Should any work need to be uploaded, ensure naming conventions are followed as instructed. Any work that is uploaded **must be in zip format ONLY**. No other file types will be accepted.

General: Note that negative marking applies to multiple choice and true-or-false type questions.

Technical: Any technical issue related to the examination platform being used needs to be reported to the invigilator immediately.

Section B: Practical

Question 3

Subtotal: [40]

Most of the schools in South Africa (SA) will close on 15th December. Before closing, the school wants to conduct the prize-giving ceremony. Manually creating the qualified students' list is time-consuming, hence you are requested to create a C# windows application for the SA education department and school admin to ease their process. Before creating an entire application SA education department technical staff want to test your skill in **Object Oriented Programming concepts, user interface (Windows Form) design, ADO.NET, File and Custom exception** etc. To show your skill you need to create a C# Windows form application which must meet the below requirements.

The requirements are:

1. The proposed system should be able used by the **SA education department** and **School Admin**.
2. Any school should be able to register into the system using School Name and Location.
 - ✓ The details should save it into the database along with the registered date.
 - ✓ The system must generate a username for each school. Thus, the school admin can use it for login to the system.
 - ✓ The username should be the first 3 characters of the school name and the first 2 characters of the school location.
 - ✓ The generated username must be saved into a file "Username.txt" along with the school name.

Example:

School Name: Belgium School

School Location: Pretoria

The username will be "BELPR"

In the file the format should be:

SchoolName#generated user name

Belgium School#BELPR

3. The school admin should be able to access the system by entering a username and password. Use the generated username and the password should be "123".
4. Once the username and password are valid, the admin can use the system otherwise display a relevant message to the user.
5. On a successful entry, the admin can enter students details in the system. Details such as: Surname, Name, Grade, and Average mark in percentage. The details should be able to save into the database table.

Example:

Surname	Name	Grade	Average Mark
John	Millan	2	79

Thomas	Gavin	5	80
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6. The school admin should be able to view all students' details along with the award category. The admin should be able to view students details based on the selection of any award categories as well.

Use **delegate** to find the award category.

Refer to the below table for receiving award category.

Average (in %)	Award category
60 - 79	Certificate
80 - 89	Certificate and Medal
90-100	Certificate, Medal and Trophy

7. The SA education department should be able to view all registered school details in a tabular format.

Note:	Create relevant classes with class members.
	Create a relevant database with table/s.
	User Interface: Design your form/s with proper controls
	Make sure to follow all suitable OOP principles.
	All data that is used in the system should be stored and retrieved from a SQL Server database, except for text files being used for some functionality.

Mark Allocation:

Criteria	Marks
File	[2]
Database and table/s creation (Submit the generated SQL Script)	[4]
Windows Form creation and system functionality	[26]
OOP's Concepts	[8]
Total	[40]