**Final Term Paper (Spring-2022)**

**BSCS/BSIT/BSSE (Morning/Evening)**

**Object Oriented Programming (CS-423)**

**Maximum Marks: 30 (Theory) Total Time: 1:45 Hr**

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**Question #1: 6 Marks** Let assume a class having a string data member and an array of string variables. The application reads a sentence from the user and stores each word of the sentence in the array. Users can enter a sentence of any length. Length of the array will be decided at run time.

For example: “this is my object oriented program of text processing“

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| this | is | my | object | oriented | program | of | text | processing |

**Question #2: 8 Marks**

Let assume Stack can store different digits, but sometimes the user is interested to write the complete name of the digit such as one, two, three etc and sometimes 1, 2, 3.  Write a complete class which gives freedom to the user to create stack objects of their own choice.

**Question #3: 8 Marks**

You are going to develop an application for arid university, consider the following scenario and write the necessary code to implement the scenario:

* A university offers degrees to students.
* The university consists of one or more departments.
* Each degree is administered by a single department.
* Each student is studying towards a single degree.
* Each degree requires one to 20 courses.
* A student enrolls in 1-6 courses (per semester)
* A course can be either graduate or undergraduate, but not both.

**Question #4:** Understand the given code and write the missing code. **8 Marks**

public class Vehicle {

public:

virtual void start()

{ cout<<”Let us start the vehicle”<<endl;

}

};

int main()

{ Vehicle vehicles[3]; //A correction is required in this line

vehicles[0] = &Car //Car is a class and there is no type casting required

vehicles[0]🡪 start(); //This should display “Turn key to start the engine”

vehicles[1] = &Bike;

vehicles[1]🡪 start(); //This should display “Kick to start the engine”

vehicles[2] = &LuxuryCar

vehicles[2]🡪 start(); //This should display “Push the START button to start the engine”

}

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**Maximum Marks: 20 (Practical) Total Time: 45 min**

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**Question #1: [4+4=8 Marks]**

Assume you have a UIIT-Faculty information system and assume you have a Password class having data members (login and password) and member functions getData(). You need to include the following functionalities:

1. Add another function **passwordVerify( )** which calls getData() function and verify the user data with the data stored (login and password) in the file **“PwdFile.txt”**
2. You need to add the code in the Password class, which handle the exception i.e. if the user password is more than 8 characters, it will throw an Exception having the information (length and a message “Is invalid length”).

**Question #2: [4 Marks]**

Based on the Scenario in Question #1, you need to add another function **updatePassword()** which calls passwordVerify() function (defined in Q1-A) and if it returns true then it will update the new password in the file **“PwdFile.txt”.** You can use getData() function to get the new password.

Note: write main function to support your functions but it is optional and has no marks.

**Question #3: Discuss your course project in 2-3 lines [8 Marks]**