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**UNIVERSITY EXAMINATIONS: 2020/2021**

**EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE INFORMATION TECHNOLOGY/ INFORMATION SECURITY AND FORENSICS/BUSINESS INFORMATION TECHNOLOGY/APPLIED COMPUTING/SOFTWARE DEVELOPMENT**

**BIT 2204A/BSD 2107/BISF 2201/BAC 2201: JAVA PROGRAMMING**

**MODE: PART TIME/FULL TIME/DISTANCE LEARNING**

 **ORDINARY EXAMINATIONS**

**DATE: APRIL.2021 TIME: 3 HOURS**

**INSTRUCTIONS:** Answer **QUESTION ONE** and any other **TWO**

**REG NO: 19/01621**

**BSCIT-EVENING**

**WESTERN CAMPUS**

**QUESTION ONE [20 MARKS]**

1. Create a class named Shirt with data fields for collar size and sleeve length. Include a constructor that takes arguments for each field. Also include a String class variable named material and initialize it to “cotton”. Write a program TestShirt to instantiate 3 Shirt objects with different collar sizes and sleeve lengths, and then display all the data, including material, for each shirt.

**10 Marks**

1. Write a Java program to create a class named Eggs. Its main() method holds an integer variable named numberOfEggs to which you will assign a value. Create a method to which you pass numberOfEggs. The method displays the eggs in dozens; for example, 50 eggs is 4 full dozen (with 2 eggs remaining).

**10 Marks**

**QUESTION TWO [15 MARKS]**

Below describes a situation where a service is rendered to an individual. The individuals performing the services are described.

**“You are going to the doctor for a check-up. You need to call and make an appointment. When you arrive, you check in at the desk. The nurse calls you back and takes you to the examining room. She takes your blood pressure and other vital signs. The doctor comes in and performs the checkup. After he is finished, you get dressed and then check out with the receptionist at the front desk”.**

1. Identify the main **objects** and corresponding **actions** (responsibilities) from the scenario.

**7 Marks**

1. Draw the class diagram for this case.

**8 Marks**

**QUESTION THREE [15 MARKS]**

 You are required to create a program that displays the result of a sales transaction. The calculation requires three numbers. The first number represents the product price. The second number is the salesperson commission. These two numbers should be added together. The third value represents a customer discount; subtract this third number from the result of the addition. Create two classes. The first class, Transaction, contains the method to do the calculation. The three numbers are passed to this method by a statement in the other class. The display is performed in the class that calls the calculation method.

1. Create a class diagram for the above case.

**7 Marks**

1. Write a java program to implement the design in a).

**8 Marks**

**QUESTION FOUR [15 MARKS]**

You are required to come up with a program that stores an employee’s hourly pay rate and hours worked. Compute gross pay (hours times rate), withholding tax, and net pay (gross pay minus withholding tax). Withholding tax is computed as a percentage of gross pay based on the following:

|  |  |
| --- | --- |
| Gross\_pay | Withholding percentage(%) |
| 0 to 300.00 | 10 |
| 300.01 to 400.00 | 12 |
| 400.01 to 500.00 | 15 |
| 500.01 and above | 20 |

1. Draw a UML class diagram for the above case.

1. Write a java program for this case.

**8 Marks**