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**University Examinations 2014/2015**

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF COMPUTER TECHNOLOGY AND BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

**CIT 3327: ADVANCED PROGRAMMING**

**DATE: APRIL 2015 TIME: 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Discuss any three merits of component based application development (6 Marks)
2. Explain giving examples the following terms as used in Object Oriented Programming:
3. Polymorphism
4. Inheritance
5. Collection (6 Marks)
6. The following is a list of customer identification number and business name

|  |  |
| --- | --- |
| **Id** | **Name** |
| 12 | Solo Mitumba |
| 34 | Waceke Viatu |
| 7 | Kawira Vegetables |
| 67 | Andrew Dubai |
| 15 | Komo Charcoal |

1. Write a program to capture above details using appropriate data structure (4 Marks)
2. Write a method that display above customer’s details in descending order (6 Marks)
3. Outline the main stages of component base application development (4 Marks)
4. Discuss two ways of making application reusable in C# (4 Marks)

*Use the following narrative to answer some part of the following questions*

The department of Computing and Mathematical Sciences of Silversmiths College has a set of courses provided for the undergraduate level. For each course a well define set of admission criteria is specified; for instance, for the “Computer Science” course, 3A are required, minimum B for each, and A in Mathematics being compulsory. Each course has a name and duration; certain courses can allow industrial placements. Each course consists of a set of modules, some compulsory and some optional. A certain module is described by its name, a short syllabus, type (lectured, seminar-like, project) and year of study for which it was intended. Each student enrolled with the department, is registered for one particular course. The student must attend the compulsory modules. For every year of study, from the set of optional modules, the student must attend a certain number which is specified in the course’s description. Each module is taught by a single lecturer. However, there might be modules, form the optional ones, that are not taught at all (for instance, because no students have actually registered for them). There also can exist lecturers who do not teach at all, being only involved in research. Contact information (address, telephone …) plus personal details (date of birth, male/female…) is needed for both lecturers and students

**QUESTION TWO (20 MARKS)**

1. Discuss any three role of generics in program writing (4 Marks)
2. From above narrative list all classes (4 Marks)
3. Draw a graphical representation of a form which could be used to capture course details

(2 Marks)

1. write appropriate code to facilitate functionality of the form in 2 (c) (10 Marks)

**QUESTION THREE (20 MARKS)**

1. From the above narrative briefly explain how the following standard controls could be used in form design for courses data entry form. Sketch form for data entry
2. Tool bar
3. Rich textbox
4. Option button
5. Common dialog box (10 Marks)
6. The dialog boxes are important in interacting with the users
7. Write the general syntax of the InputBox Function (3 Marks)
8. Draw an InputBox produced by the following statement

Input box (“Type the Student Number”, “Search Student Record”, “BIT-000-0000/2000”,YesNo) (2 Marks)

1. Dialog boxes enable the interaction between the user and the program
2. Explain three categories of Dialog Boxes used in C# (3 Marks)
3. A dialog box can be displayed as either modal or modeless. Explain (2 Marks)

**QUESTION FOUR (20 MARKS)**

1. Design class diagram from above narrative (6 Marks)
2. Using sample queries differentiate between DML and DCL commands (8 Marks)
3. A database in drive C named product.mdf is contained in a directory named applications. Use the ADO component to declare, initiate and open the connection and dataset objects. A table named product is used and all the fields are selected (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. List and state work of any user support control (2 Marks)
2. Discuss using example role of embedded SQL in Visual C# (4 Marks)
3. From above narrative design a relational database for Silversmiths College (10 Marks)
4. Briefly explain role of constructor in memory management in C# (4 Marks)