

(Knowledge for Development)

**KIBABII UNIVERSITY**

(KIBU)

**UNIVERSITY EXAMINATIONS  
2020/2021 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS  
FOURTH YEAR SEMESTER ONE EXAMINATIONS**

**FOR THE DEGREE OF  
BACHELOR OF SCIENCE  
(COMPUTER SCIENCE)**

**COURSE CODE : CSC 460E  
COURSE TITLE : PROGRAMMING WITH C# &  
.NET FRAMEWORK**

**DATE: 15 /06/ 2021 TIME: 02.00 P.M – 04.00 P.M**

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO**

**QUESTION ONE [COMPULSORY] [30 MARKS]**

a) Define the following terms. **[2 Marks]**

- i. Class
- ii. Object

b) C# relies heavily on classes, using UML, explain the components of a class. **[4 Marks]**

c) Access modifiers in C# plays an important role. Describe at least two access modifiers and their effects. **[4 Marks]**

d) .Net Framework is anew computing platform that provides tools and technologies needed to build varied applications. Discuss some of these applications. **[4 Marks]**

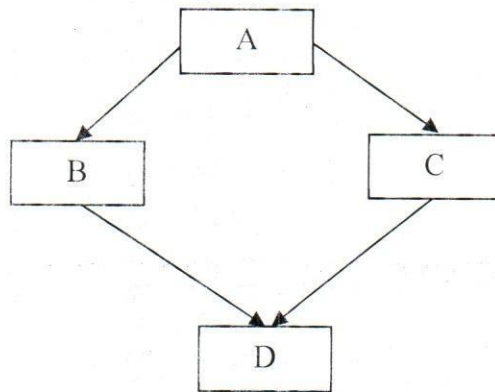
e) Write a C# program that prompts the user to enter a positive integer; the program should then display every second even number greater than 0 and less than the number entered. The output might look like: **[6 Marks]**

*Enter Positive Integer: 20*

*The output: 4,8,12,16*

f) Write a C# program that uses a recursive function to calculate the LCM of two numbers passed as arguments. **[4 Marks]**

g) Using examples, discuss how hybrid inheritance shown can be achieved in C#. **[6 Marks]**



## QUESTION TWO [20 MARKS]

- a) Differentiate between the following terms [4 Marks]
- i. CLR and CLS
  - ii. Web Forms and Windows Forms
- b) Give two advantages of using .Net framework. [2 Marks]
- c) Using well labeled diagram, discuss the structure of .Net Framework. [8 Marks]
- d) Discuss the functioning of .Net framework. [6 Marks]

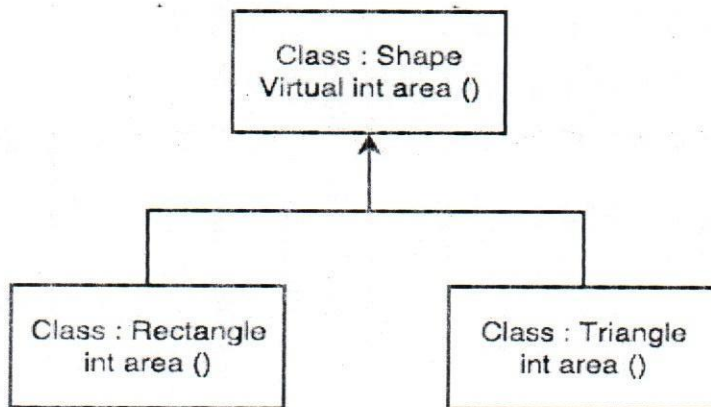
## QUESTION THREE [20 MARKS]

- a) Define the following terms [2 Marks]
- i. Array
  - ii. Structure
- b) Discuss the features of C# structures. [4 Marks]
- c) Describe the difference between Classes and Structures. [4 Marks]
- d) Giving scenarios of each case, discuss how polymorphism is achieved in C#. [4 Marks]
- e) Define a structure called Books that has title, author, subject and Book\_id. [3 Marks]
- f) Write a driver program for the structure defined in e). [3 Marks]



#### QUESTION FOUR [20 MARKS]

- a) Define the following terms [2 Marks]
- i. Inheritance
  - ii. Polymorphism
- b) Discuss types of inheritance in C#. [4 Marks]
- c) Differentiate between the following types of polymorphism. [4 Marks]
- i. Compile Time Polymorphism
  - ii. Run Time Polymorphism
- d) Write a C# program that uses necessary data members to compute area of each shape while implementing inheritance shown. [6 Marks]



- e) Using examples of your choice, differentiate between Single Cast Delegates and Multi Cast Delegates. [4 Marks]

#### QUESTION FIVE [20 MARKS]

- a) Define the following terms [2 Marks]
- i. GUI
  - ii. Events
- b) GUI is said to be a common feature in modern systems. Explain how C# can be used to create a GUI. [4 Marks]
- c) A good GUI requires good planning, explain the process of coming up with a good GUI. [6 Marks]
- d) Events are powerful features of C#, explain the life cycle of event processing in C#. [2 Marks]
- e) Write a C# program that simulates a clock with hour, minute and second hand. [6 Marks]