(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

END OF SMESTER EXAMINATION

SECOND YEAR SECOND SEMESTER

FOR THE DIPLOMA IN

(INFORMATION TECHNOLOGY)

COURSE CODE: DIT 077

COURSE TITLE: OBJECT ORIENTED PROGRAMMING

DATE: 13/10/2021 **TIME:** 2.00 P.M. - 4.00 P.M.

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] (24 MARKS]

.a) Define the following terms as applied in object oriented programming

i) Inheritance (2mks)

ii) Abstraction (2mks)

iii) encapsulation (2mks)

iv) polymorphism (2mks)

v) Constructor (2mks)

vi) Object (2mks)

b) i) Differentiate between method overloading and method overriding as applied in java programming (4mks)

ii) State any four applications of java programming language (4mks)

iii) Differentiate default and parameterized constructors (4mks)

QUESTION TWO [18 MARKS]

a) State **four** differences between a java method and a java constructor (4mks)

b) Using diagrams, explain any three types of Inheritance (6mks)

c) Write a complete Java application to prompt the user for the radius of a sphere, and call method sphereVolume to calculate and display the volume of the sphere. Use the following statement to calculate the volume: (4.0/3.0)* Math.PI * Math.pow (radius,3) (8mks)

QUESTION THREE [18 MARKS]

a) i) state the four access specifiers used in java programs (4mks)

ii) Using a for loop write a java program to output number 1 to 20 (6mks)

b) Write a java program snippet that implements java method overloading (8mks)

QUESTION FOUR [18 MARKS]

a) Outlie four areas that distinguishes an interface from a java class (4mks)

b) Distinguish between aggregation "has-a" and Generalization "is-a" relationships using well labelled diagrams. (6mks)

c) Write a java program that calculates the area of a circle using a java method (8mks)

QUESTION FIVE [18 MARKS]

a) Give any four features of object oriented languages (4mks)

b) Differentiate between a formal and actual parameter (4mks)

c) Write a java program that implements inheritance to calculate the area of triangle ad rectangle as show in the diagram below. (10mks)