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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2024/2025 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

KCS 2200 OBJECT ORIENTED PROGRAMMING II

Date: 8TH AUGUST, 2024

Time: 8:30 AM – 10:30 AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE: COMPULSORY (30 MARKS)

- a) Using relevant examples, describe the following terms as used in object-oriented programming
- i. Constructor (3 Marks)
 - ii. Encapsulation (3 Marks)
 - iii. Polymorphism (3 Marks)
 - iv. Inheritance (3 Marks)
- b) Citing relevant examples, clearly differentiate between Class and Object (3 Marks)
- c) What is exception handling, and write python code implementing zero division error (4 Marks)
- d) Write any program of your choice implementing if, else-if and else statement (4 Marks)
- e) Having good understanding of python language, you have been hired by Google as their data scientist. Describe the following library as used in data science
- i. Pandas (2 Marks)
 - ii. Numpy (2 Marks)
 - iii. scikit-learn (2 Marks)
 - iv. matplotlib (1 Mark)

QUESTION TWO: (20 MARKS)

- a) You have been hired by Equity Bank as a senior python developer, write a java program code to implement encapsulation in its ATM Machines transactions like deposit, withdraw and checking balance (10 Marks)
- b) Describe five importance of using encapsulation in object-oriented programming (5 Marks)
- c) Describe five advantages of object-oriented programming languages (5 Marks)

QUESTION THREE: (20 MARKS)

Upon completing your Bachelor degree in Computer Science, you have been hired as a senior python developer, to develop bank management system. The system will implement various object oriented concepts

Class: Customers

Objects: Customer1, Customer2, Customer3

Required: Using the above provided details

- a) Write a python code implementing class with relevant attributes, constructors and methods **(8 Marks)**
- b) Write a python code implementing creation of the three objects and calling all the necessary methods **(7 Marks)**
- c) Describe the importance of constructors during object-oriented programming **(5 Marks)**

QUESTION FOUR: (20 MARKS)

- a) What is file handling, write a python program that create .txt file and that can write /append text from user's input **(10 Marks)**
- b) Write a real-world program implementing inheritance in python **(10 Marks)**

QUESTION FIVE: (20 MARKS)

- a) Write a program of your choice implementing polymorphism in python programming **(8 Marks)**
- b) Describe the importance of polymorphism technique during system development **(4 Marks)**
- c) What is recursion function, write a python program using recursion function to generate factorial factor of a number **(8 Marks)**