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

KCS 2102 OBJECT ORIENTED PROGRAMMING 1

Date: 14TH AUGUST, 2024

Time: 11:30 AM – 1:30 PM

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 on object-oriented programming paradigm
 - i. Class (2 Marks)
 - ii. Object (2 Marks)
 - iii. Method (2 Marks)
 - iv. Constructor (2 Marks)
- b) Describe four applicable areas of python programming language (4 Marks)
- c) With the help of python snippet code, explain two reasons of using comments in python programming (3 Marks)
- d) Elaborate four rules of declaring and naming variables in python programming (4 Marks)
- e) What is Exception handling, and write a python code that can gracefully handle zero division error (6 Marks)
- f) What is the recursion function, and write a python program of your choice implementing recursion function? (5 Marks)

QUESTION TWO: (20 MARKS)

Upon completing your degree, you have been hired as a junior python developer, to develop student management system. The system will implement various object-oriented concepts

Class: Students

Objects: student 1, student 2, student 3

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)

QUESTIONS THREE: (20 MARKS)

- a) Explain four reasons why a programmer would implement encapsulation technique in object-oriented programming **(5 Marks)**
- b) You have been hired by safaricom as a senior python developer, write a python program code to implement encapsulation in Mpesa transactions like deposit, withdraw and checking balance **(10 Marks)**
- c) Differentiate between tuple and list in python and give two advantages of each **(5 Marks)**

QUESTION FOUR: (20 MARKS)

- a) Describe the importance of including inheritance in object-oriented programming **(5 Marks)**
- b) Write a python program of your choice implementing inheritance object-oriented concept **(10 Marks)**
- c) Write python programming language to perform the following string methods
 - i. Change case to upper case **(2 Marks)**
 - ii. Change case to title case **(2 Marks)**
 - iii. Check the string of a string **(1 Mark)**

QUESTION FIVE: (20 MARKS)

You have been recruited by ABC software development Firm, and hired as a python developer.

- a) Describe two python frameworks that can be used in web development **(5 Marks)**
- b) Describe two python frameworks that can be used in graphical user interface (GUI) **(5 Marks)**
- c) Describe two python libraries that can be used to perform data manipulation and analysis and matrixes **(5 Marks)**
- d) Describe the reasons why you would consider python over other object-oriented programming languages **(5 Marks)**