



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)

SCO 103: OBJECT ORIENTED PROGRAMMING I

2ND SEMESTER 2023/2024

TIME: 2 HOURS

INSTRUCTIONS:

Answer Question ONE and any other TWO Questions

1. (a) Define object oriented programming. (2 marks)
- (b) Give three examples of primitive datatypes used in Java that deal with whole numbers. (3 marks)
- (c) Write a simple Java program that uses a one dimension array to list the numbers 1 to 100. (5 marks)
- (d) Describe three steps involved in creation of an object form a class. (6 marks)
- (e) Explain the following paradigms of object oriented programming
 - (i) Encapsulation
 - (ii) Inheritance (4 marks)
- (f) A certain college uses the following grading system to grade their students

80 – 100	A
60 – 69	B
50 – 59	C
< 50	Fail

Write an appropriate object oriented program in Java that can be used to read in a mark and award the respective grade. (10 marks)
2. (a) Using suitable examples explain the meaning of the following words as used in object oriented programming. (8 marks)
 - (i) Class
 - (ii) Method
 - (iii) Object
 - (iv) Constructor

- (b) Using a for (){} loop write a Java program that displays all the integer numbers between 1 and 100 inclusive that are divisible by 3 and 5. (7 marks)
3. (a) Explain the meaning of the following words in the code “public static void main (String []args)”
- (i) Public
 - (ii) Static
 - (iii) Void
 - (iv) Main
 - (v) String[] args (5 marks)
- (b) Write a java program that uses a one dimensional array to read in ten random integers and output them in ascending order using loops. (10 marks)
4. (a) Explain the following principles of object oriented programming. Give a suitable example in each case. (4 marks)
- (i) Abstraction
 - (ii) Polymorphism
- (b) Write an object oriented program that reads in marks from a student for 3 subjects. (English, Kiswahili, Math), computes the total and average and then display the results. (11 marks)
5. (a) Write a java program that reads in radius of a circle from the user and outputs its area and perimeter. (8 marks)
- (b) Define exceptions in Java, hence using a suitable diagram describe the Java exception hierarchy. (7 marks)