



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 200: OBJECT ORIENTED PROGRAMMING II

DATE: 23/3/2021

TIME: 8.30-10.30 AM

INSTRUCTION: Answer Question ONE and any other TWO Question

QUESTION ONE (30 MARKS)

- a) List at least FIVE set of tools contained in Java development toolkit (JDK) java environment for developing and running Java program (5 marks)
- b) Differentiate between the following terms as used in general programming (6 marks)
 - i. A while and a do while loop
 - ii. Superclass and subclass
 - iii. Conventional programming and event driven programming
- c) Define the term array and write a statement that declares and initializes an array to store the marks of five students. (4 marks)
- d) Java exception handling is managed by five keywords: state and discuss the role of each of the keywords. (5 marks)

QUESTION TWO (20 MARKS)

- a) Java is well known for the development of Applets and stand-alone applications. List at least FIVE differences between java applications and applets (10 marks)
- b) Java Applet class has many methods that are used to display images, play audio files etc. but it has NO main () method. List and explain the four methods available in applet class (8 marks)
- c) Explain what is meant by an 'IDE' explaining the benefits of using it in Java (2 marks)

QUESTION THREE (20 MARKS)

- a) Using Java language write a program in console that accepts two user input numbers: number1 and number2, then compares the two numbers and outputs: number1 equals number2 or number1 is less than number2 or number1 is greater than number2 depending on the outcome (6 marks)
- b) Give an example, using code where appropriate, of a sensible constructor method for a Student class that contains attributes for name, address and age. (4 marks)
- c) Explain the following terms as used in programming (10 marks)
 - i. Variable
 - ii. Constant
 - iii. Data type
 - iv. Function
 - v. Identifier

QUESTION FOUR (20 MARKS)

- a) Using any Object-Oriented Programming language of your choice; define the term constructor and demonstrate using an example (6 marks)
- b) Show the syntax for the iteration statements used in Java Programming and explain each iteration statement (8 marks)
- c) List and explain the access modes (modifiers) used within a class in object-oriented programming (6 marks)

QUESTION FIVE (20 MARKS)

- a) Explain the features and characteristics of Java programming language (10 marks)
- b) To manage the size of program code in many programming languages, control structures are mandatory. List and Explain the three control structures (6 marks)
- c) Define the following terms as used in Object Oriented Programming (4 marks)
 - i. Garbage collection
 - ii. Java virtual machine