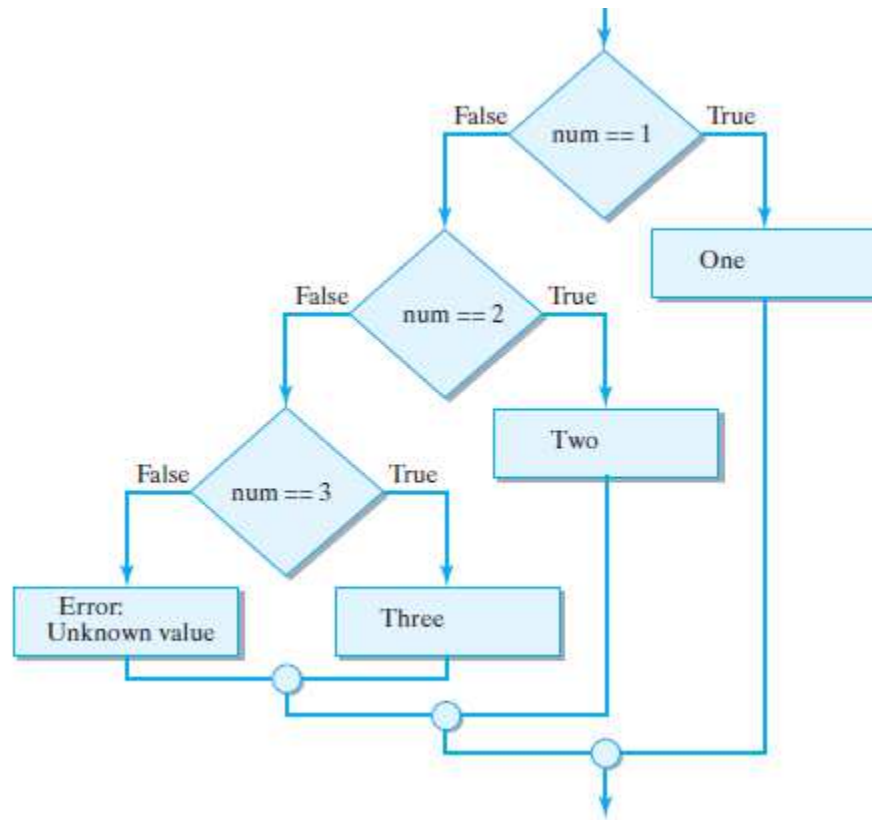# MACHAKOS UNIVERSITY

UNIVERSITY EXAMINATIONS 2017 / 2018

YEAR 2 SEMESTER 2 EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

SCO 200: OBJECT ORIENTED PROGRAMMING II

{Supplementary Exam}

QUESTION 1 (COMPULSORY)

a) Explain any 3 fundamental principles of Object Oriented Programming, indicating how each is implemented where possible demonstrate using a sample code   [12 marks]

b) Write a simplest while loop then Covert it into its equivalent **do . .. while** and **for** loops   [10 marks]

c) Define the following OOP concepts   [8 marks]
   a) Class
   b) Object
   c) Method
   d) Instance Variable

QUESTION 2

a) Write a simple Java code snippet that would display "Player One" if the user enters '1' and or 'Player 2" if the user enters '2'. Use an if . . . else statement   [6 marks]

b) Convert the flow-chart below into a code snippet   [10 marks]

c) Identify and explain any two types of constructors? [4 marks]

QUESTION 3

a) Explain the following expressions written in Java language. In your explanation, identify the type/category operator in use [10 marks]

i). x * y

ii). a / b

iii). x++

iv). a = 100

v). x <= y

b) An algorithm is a procedural or systematic description of a solution to a given problem. When designing program objects or classes, you should always attempt to answer the some key questions. List down three such questions [4 Marks]

c) A good computer program has several comments (statements that explain the program but are not part of the program's code). Describe the three types of comments allowed in Java, indicating the symbols used when commenting a program   [6 marks]

QUESTION 4

a) Software engineering is a process that consists of designing and writing of software. A software life cycle is thus the various phases engaged in the actual design and development of software. Describe these phases   [12 Marks]

b) Identify the three components of a class diagram. Illustrate your response using a UML diagram   [8 marks]

QUESTION 5

a) Differentiate between Structured Programming, Procedural Programming, and Object Oriented Programming. Mention one example of a programming language in each case   [12 marks]

b) Write a simple while loop that would output the first 7 numbers starting with zero   [8 marks]