MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

DIT 200: OBJECT ORIENTED PROGRAMMING II

DATE: 5/6/2017 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS

Answer all questions in section A and any two questions from section B

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Explain the meaning of the following **OOP** Concepts

i. Data abstraction

ii. Dynamic Biding

iii. Static binding

iv. Inheritance

v. Data Encapsulation (5 marks)

b) Explain any **four** features of Java programming (8 marks)

c) Explain the **three** main characteristics of an object (6 marks)

d) Write a Java program that allows a user to input any two integer numbers – the lower and upper limit respectively. The program should then calculate the sum of all the even numbers within your range and display the result to the user via a dialog box. (7 marks)

e) Explain the *differences* between a *base class* and a *derived class* (4 marks)

QUESTION TWO (20 MARKS)

a) Explain the **four** main methods of *Applets* in Java Programming (8 marks)

b) Write a Java program that defines a class called Circle with one data member. The program has two methods, Area for calculating and returning the area of the circle and another method called Circumference for returning the circumference of the area. The program should make use of a constructor. Declared an object called circleA and use it to call the two member functions (6 marks)

c) Explain any **four** differences between Java and C++ programming languages (4 marks)

d) Explain the purpose of the *new* keyword in java (2 marks)

QUESTION THREE (20 MARKS)

a) Explain Java *applet lifecycle* (5 marks)

b) Write a Java program that will implement a class containing the dimensions of *right angled triangle* (base and height) and a *parameterized constructor* to initialize the dimension as **12cm** and **5cm** respectively. The program should then determine the *length* of the **3rd** side through the use of a function and output it. (6 marks)

c) Java exception handling is managed by **five** keywords. State and discuss the role of each of the keywords (5 marks)

d) Define the term *Java Applets* (2 marks)

e) Explain the meaning of an *anonymous* object (2 marks)

QUESTION FOUR (20 MARKS)

a) Define the term *array* (2 marks)

b) Explain the different types of *variables* found in Java programming (6 marks)

c) Explain the meaning of the following terms

i. Overriding

ii. Constructor

iii. Object

iv. Class (4 marks)

d) List any **four** rules that must be followed when creating an identifier (4 marks)

e) Explain the differences between **break** and **continue** (4 marks)

QUESTION FIVE (20 MARKS)

a) Write a java program that accepts five subject marks for a student through the keyboard. The program should then determine the average and the printout the grade using the following grading system

AVERAGE	GRADE
>=75	A
>=60	B
>=50	C
>=40	D
<40	E

(7 marks)

b) Write a *recursive* program that accepts a number through the keyboard and calculates the *factorial* of the number (5 marks)

c) Explain the general syntax for declaring a *switch case statement* (4 marks)

d) Write a java code that will print out all the *odd numbers* between 100 and 210 (4 marks)