

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL

**SECOND YEAR SEMETER TWO EXAMINATION FOR THE AWARD  
OF BACHELOR OF ENTREPRENUERSHIP AND ENTERPRISE  
MANAGEMENT**

**BCOM 364: COMPUTER PROGRAMMING 2**

**STREAMS: BEEM (Y2S2)**

**TIME: 2 HOURS**

**DAY/DATE: THURSDAY 04/02/2021**

**8.30 A.M. – 10.30 A.M.**

**INSTRUCTIONS:**

- **Answer Question 1 and Any Other Two.**
- **Do not write on the question paper.**

**SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION**

**QUESTION ONE (30 MARKS)**

- Discuss the difference between the **Do-While** and **While** loop controls and write an example program that implements either. (4 Marks)
- Demonstrate inline functions by writing a program with two inline functions (Prod and Mod) each taking two arguments. The Prod function should return the product of two numbers while the Mod function should return the remainder after division of the two numbers. (4 Marks)
- List three special characteristics of friendly functions. (3 Marks)
- Write an overloaded function to compute the volume of a cube, cylinder and a rectangular box. (Write the function only, not the whole program). (5 Marks)
- Write a Student class with one data attribute and two methods and show how it can be used to instantiate an object. (6 Marks)
- What are nested member functions? Write program to illustrate nesting of member functions. (6 Marks)
- Using an illustration, show how a member function of a given class can be declared as a friend to another class. (2 Marks)

**SECTION B: ATTEMPT ANY TWO QUESTIONS (40 MARKS)**

**QUESTION TWO (20 MARKS)**

- a) Briefly describe three commonly used string constructors. (6 Marks)
- b) Write a program that allows the user to input a string. The program then displays the string, its size, capacity, the maximum possible size and whether the user has actually entered anything or not. (10 Marks)
- c) Briefly describe the two types of exceptions and the type of exception that C++ is designed to handle. (4 Marks)

**QUESTION THREE (20 MARKS)**

- a) What is a container? Describe any three containers supported by the STL. (4 Marks)
- b) Outline the task for each of the following member functions of the vector class. (5 Marks)
  - i. `at()`
  - ii. `push_back()`
  - iii. `insert()`
  - iv. `begin()`
  - v. `resize()`
- c) Write a program that reads the contents of a file (say `MyFile.cpp`) word by word and puts them into a vector of strings. The program then prints to the screen all the words in the vector each on its line, the total number of words read and then clears all the words from the vector. (11 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Define the following terms: (6 Marks)
  - i. Local classes.
  - ii. Friendly functions.
  - iii. Object arrays.
- b) Write a program that illustrates the use of object arrays. The program should accept the Name, Reg. No and Age of 10 students and store the details in an object array. The program then displays these details on the screen. (10 Marks)

- c) Private member functions can be used to handle tasks with restricted access. Write a class definition with a private member function. (Write the class definition only, not the entire program). (4 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Differentiate between a constructor and a destructor giving the use for each. (4 Marks)
- b) Write a class specification that makes use of a parameterized constructor (use two parameters) and a deconstructor for the same. (8 Marks)
- c) With the use of appropriate examples, illustrate two ways by which you can pass initial values as arguments to a parameterized constructor when an object is declared. (Use not more than three arguments). (4 Marks)
- d) List any four special characteristics that constructor functions have. (4 Marks)
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