



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATION FOR THE DEGREE OF ACTUARIAL SCIENCE WITH
IT
YEAR 3, SEMESTER 1
2024/2025 ACADEMIC YEAR
MAIN CAMPUS

COURSE CODE: ITB 9209

COURSE TITLE: C++ Programming

VENUE:

STREAM:ACTARIAL

DATE: 7/1/25

EXAM SESSION: 9-11.00 AM

TIME:2.00 HOURS

INSTRUCTIONS:

- 1) Answer QUESTION ONE (Compulsory) and ANY other TWO questions**
- 2) Candidates are advised not to write on the question paper**
- 3) Candidates MUST hand in their answer booklets to the invigilator while in the examination room**
- 4) Mobile phones are NOT allowed in the examination room.**

JOOUST OBSERVES ZERO TOLERANCE TO EXAMS CHEATING

QUESTION ONE (30 MARKS)

- i) What is the use of `emplace()` function? (2 Marks)
- a) Used to change the object any container is holding
 - b) Used to add more item to the any list
 - c) Used to empty any container value
 - d) Used to check the type of any variable

- ii) What will be the output of the following C++ code? (3 Marks)

```
include<iostream>
```

```
#include<any>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    float val = 5.5;
```

```
    any var(val);
```

```
    cout<<var.type().name()<<endl;
```

```
    return 0;
```

```
}
```

- a) f
- b) d
- c) Pkc
- d) u

- iii) Explain any five differences between C and C++ (10 Marks)

- iv) Explain what are classes and objects in C++ (4 Marks)

- v) Explain what are access modifiers and list the three types of access modifiers (5 Marks)

- vi) What is the size of the `int` data type (2 Marks)

- a) 4 bytes
- b) 1 byte
- c) 8 bytes
- d) 2 bytes

vii) Which among these is used to return the number of characters in the string? (1 Mark)

- a) Size
- b) Length
- c) Both size and length
- d) Name

viii) Give the difference between equal to (==) and assignment operator (=)? (3 Marks)

QUESTION TWO (20 MARKS)

- a) Discuss how structure is different from class (4 Marks)
- b) What do you understand about polymorphism in C++ (4 Marks)
- c) Discuss any six features of the Object Oriented programming (12 Marks)

QUESTION THREE (20 MARKS)

- a) Discuss any five features of C++ programming language (10 Marks)
- b) List the five tokens found in C++ (5 Marks)
- c) State rules for naming the identifiers in C++ programming language (4 Marks)
- d) List any two application of OOP (1 Mark)

QUESTION FOUR (20 MARKS)

- a) Give an example of Polymorphism in a diagram form (8 Marks)
- b) Name and discuss the five types of inheritance in C++ (10 Marks)
- c) Explain what is a function and give examples (2 Marks)

QUESTION FIVE (20 MARKS)

- a) Discuss any six types of variables in C++ language and their use. (12 Marks)
- b) Write a C++ algorithm code to remove spaces in the string. (8 Marks)