



*(Knowledge for Development)*

**KIBABII UNIVERSITY**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATIONS  
YEAR THREE SECOND SEMESTER  
EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE  
COMPUTER SCIENCE**

**COURSE CODE : CSC 324**

**COURSE TITLE : PRINCIPLES OF  
PROGRAMMING LANGUAGES**

**DATE: 03/02/2021**

**TIME: 2:00 P.M – 4:00 P.M**

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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

### QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Explain how the following compelling reasons have contributed to computer scientists learning about all programming languages
- I. Improved background for choosing appropriate language
  - II. Increased capacity to expression of ideas **[4 Marks]**
- b) Explain how oversimplification can be achieved in programming languages **[6 Marks]**
- c) Compare and contrast procedural, functional, logic and object oriented programming languages **[6 Marks]**
- d) Explain how reliability in programming languages can be achieved through
- I. Typechecking
  - II. Exceptional handling
  - III. Readability and writ ability **[6 Marks]**
- e) Describe with aid of a diagram the influence of computer architecture on language design **[6 Marks]**
- f) Describe language design tradeoff. **[2 Marks]**

### QUESTION TWO [20 MARKS]

- a) Explain the term data abstraction. **[2 Marks]**
- b) With the aid of diagram describe the layered interface of virtual computers by a typical computer system. **[8 Marks]**
- c) What is an example of lack of orthogonality in the design of C **[4 Marks]**
- d) Describe THREE keys to object Oriented technology. **[6 Marks]**

### QUESTION THREE [20 MARKS]

- a) State the programming domains. **[4 Marks]**
- b) Given the problem below
- I need to calculate the total sales
- The sale tax rate is 10%
- To write this program I'll
- Multiply the purchase price by the tax rate and add the purchase price to the result

- I. Explain how this will be achieved by second generation language [6 Marks]
- II. Explain how this will be achieved by 3<sup>rd</sup> generation language [5 Marks]
- III. Explain how this will be achieved by 4<sup>th</sup> generation language. [5 Marks]

#### QUESTION FOUR [20 MARKS]

- a) Describe TWO programming language s deficiencies that were discovered as a result of the research in software development in 1970's. [4Marks]
- b) Describe the markup / programming hybrid languages. [4 Marks]
- c) Write a program of your own choice in TWO different programming languages clearly indicating the uncommon construct s in each of the four programming languages. [6Marks]
- d) Describe the FIVE generation s of programming languages clearly highlighting it's characteristics, merits, demerits and examples [6 Marks]

#### QUESTION FIVE [20 MARKS]

- a) Describe the FOUR programming methodologies and their respective abstraction concepts [8 Marks]
- b) Using a program code of your own choice , write a program to highlight THREE types of abstraction [12 Marks]