



**NATIONAL OPEN UNIVERSITY OF NIGERIA,
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2024 1 EXAMINATION**

COURSE CODE: CIT332

COURSE CREDIT: 3

COURSE TITLE: SURVEY OF PROGRAMMING LANGUAGES

TIME ALLOWED: 2½ HOURS

INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3) QUESTIONS

QUESTIONS

- 1(a) Tabulate three (3) main similarity features of Python and Java programming language that make them a programming language of choice in the fifth generation. [6 marks]
- (b) How is Von Neumann architecture related to programming [6 marks]
- (c) Appraise the role of user friendliness in the development of computer aided learning for kindergartens [4 marks]
- (d) Analyse PEARL single-line and multiple- line comments and illustrate each with an example [4 marks]
- (e) What is meant by a programming language being machine independent [5 marks]
- 2 (a) Write a simple C++ program to print the statement "Nigeria shall rise again" followed with an in-line comment [3 marks]
- (b) Give the syntax for each of the following in C sharp (C#) (i) While loop (ii) For-loop (iii) Go to loop [9 marks]
- (c) List 3 reasons for studying programming languages [3 marks]
- 3 (a) Draw a parse tree for the expression $G = B*(C+A)$ [8 marks]
- ((b) Write a C++ program using the switch statement to determine grades using the letters A, B, C or F depending on whether variable k has the value 1,2,3 or 4. Otherwise a warning of out of range is flagged [7 marks]
- 4 (a) Consider $G = (\{S, B < C\}, \{a, b, c\}, p, s \}$ where the productions p are))
1. $S \rightarrow aSBC$
 2. $S \rightarrow abC$
 3. $CB \rightarrow BC$
 4. $bB \rightarrow bb$
 5. $bC \rightarrow bc$
 6. $cC \rightarrow cc$
- derive the string abc [4 marks]
- (b) Give 3 general naming conventions in programming [5 marks]
- (c) Carry out short circuit evaluation and tabulate the results with the variables A, B [6 marks]
- 5 (a) Write a C++ language program to find the area of a rectangle [9 marks]
- (b) Distinguish between dynamic and static scope in programming [6 marks]
- 6 (a) Identify 3 components of a generative grammar [6 marks]
- (b) Show 2 examples of overload operators in each of (i) Java (ii) C++ (iii) C# programming [6 marks]
- (c) Define a Java literal and show two (2) types of it with an example of each [3 marks]