NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2021_1 EXAMINATIONS

CIT 445 – Principles & Techniques of Compilers**.** **Credit:** 3 units

TIME ALLOWED: 2½ Hours
INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions

Q1a. Define a Parser (3 Marks)
b. Mention four (4) basic types of grammar (4 Marks)
c. Explain the Chomsky Hierarchy (3 Marks)
d. What is Compiler? (3 Marks)
e. Explain the concept of Code Optimization (4 Marks)
f. Describe the concept of Transition Diagram (TD) (3 Marks)
g. Explain Bottom-Up Parsing Technique (2 Marks)
Total Marks (22 Marks)

Q2a. Briefly Discuss Semantic Analysis (3 Marks)
b. Discuss with example, the Static Allocation (5 Marks)
c. What is Dead Code Elimination? (2 Marks)
d. Define the compiler Back-end (2 Marks)
Total Marks (12 Marks)

Q3a. Describe the Compiler Architecture? (4 Marks)
b. Why do you need Lexical Analyzer? (4 Marks)
c. With examples, explain the term Attribute? (4 Marks)
Total Marks (12 Marks)

Q4a. What are the challenges involve in developing compilers? (6 Marks)
b. Describe the concept of Intermediate Representation (6 Marks)
Total Marks (12 Marks)

Q5a. With suitable example, explain the concept of Augmented Grammar (4 Marks)
b. How does Regular Expressions (Res) works? (4 Marks)
c. What are the ways of constructing lexical analyzer? (4 Marks)
Total Marks (12 Marks)

Q6a. Demonstrate the concept of Context-Free Grammar (8 Marks)
b. With example, explain the GOTO Function (4 Marks)
Total Marks (12 Marks)