CRAWFORD UNIVERSITY FAITH CITY, IGBESA

COLLEGE OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES

RAIN SEMESTER EXAMINATION SESSION: 2018/19

COURSE CODE: CSC 323

COURSE TITLE: COMPILER CONSTRUCTION

TIME: 3HOURS

INSTRUCTION: ANSWER FOUR QUESTIONS ONLY

1(a) With the aid of a diagram show the functional components of a compiler. **(4.5MKS)**

(b) Give four reasons for separating lexical analysis and syntax analysis during compiler construction. **(4MKS)**

(c) Write short notes on the followings phases of a compiler:

(i) Type checking, (ii) Register Allocation (iii) Assembly and Linking. **(4.5MKS)**

(d) Explain the two major tasks performed by a compiler. **(2MKS)**

2(a) Write short note on the following in programming languages:

(i) Syntax (ii) Semantics (iii) Pragmatic **(4.5MKS)**

(b) What are the goals of the programming languages analysis? **(3MKS)**

(c) Enumerate the syntactic and semantic properties of a programming language. **(5MKS)**

(d) Differentiate between compiler and assembler. **(2.5MKS)**

3(a) Explain the approaches for building lexical analyser **(4MKS)**

(b) Write short notes on the followings: (i) Finite Automation (ii) Regular Expression (iii) NFA. **(4.5MKS)**

(c) In a tabular form show the construction used to build Regular Expression and their description. **(5MKS)**

(d) Explain Deterministic finite automation. **(1.5MK)**

4(a) Enumerate the steps required to construct DFA from NFA. (4MKS)

(b) Define Context Free Grammar as used in compiler construction and explain all its components. (5MKS)

(c) Enumerate the steps required to implement DFA using table driven approach and switch statements. (4MKS)

(d) Outline the steps used for scanner construction. (2MKS)

5(a)With the aid of a diagram show syntax analyser and state its major function in compiler construction. (5MKS)

(b) Differentiate between the following pair:

(i) Leftmost and Rightmost derivatives (ii) Semantic and Logical errors (iii) Register and Address descriptors (4.5MKS)

(c) Define Peephole Optimization and state the possible optimization in intermediate code statements. (3MKS)

(d) What is a parse tree and when do we consider parse tree to be ambiguous. (2.5MKS)

6(a) Explain the four error recovery strategies that can be implement by the parsers to handle errors in the code. (5MKS)

(b) Explain directed acyclic graph and how it can be understood by compiler constructors (2.5MKS)

(c)Write short notes on the followings: (i) target language (ii) selection of instruction (iii) intermediate representation. (4.5MKS)

(d) Differentiate between the front end and back end phases of a compiler. (3MKS)