Roll No.:

Total No. of Questions : 11] [Total No. of Printed Pages : 8

AS-440

M.Sc. (Computer Sc.) IV Semester (Reg./New/ATKT) Examination June 2019

COMPILER DESIGN

Paper - II

Time Allowed : Three Hours] *[Maximum Marks : 85*

Note: All questions are compulsory.

Section - A

Objective Type Questions

$15 \times 1 = 15$

Q.1. i) Number of states of FSM required to simulate behaviour of a computer with a memory capable of storing "m" words, each of length 'n'

(a) $m \times 2^n$

(b) 2^{mn}

(c) $2^{(m+n)}$

(d) All of the mentioned

ii) Which of the following is right?

(a) A context free language can be accepted by a deterministic PDA

(b) union of 2 CFLs is context free

(c) The intersection of two CFLs is context free

(d) The complement of CFLs is context free

iii) Which of the following pairs of regular expressions are equivalent?

(a) $1(01)^*$ and $(10)^*1$

(b) $x(xx)^*$ and $(xx)^*x$

(c) x^* and $x^* x^{(*+)}$

(d) All of the mentioned

iv) A compiler program written in a high level language is called

(a) Source Program

(b) Object Program

(c) Machine Language Program

(d) None of the mentioned

v) System program such a compiler are designed so that they are

(a) Re-enterable

(b) Non-Usable

(c) Serially usable

(d) None of the mentioned

vi) Which of the following is not feature of compiler?

(a) Scan the entire program first and translate into machine code

(b) To remove syntax errors

(c) Slow for debugging

(d) Execution time is more

vii) What constitutes the stages of the compilation process?

(a) Feasibility study, system, design, and testing

(b) Implementation and documentation

(c) Lexical analysis, syntax. Analysis and code generation

(d) None of the mentioned

viii) The lexical analyzer takes _____ as input and produces a stream of _____ as output.

(a) Source program, tokens

(b) Token, source program

(c) Either of the two

(d) None of the mentioned

ix) A grammar for a programming language is a formal description of

(a) Syntax (b) Semantics

(c) Structure (d) Library

x) Parsing is also known as

(a) Lexical Analysis

(b) Syntax Analysis

(c) Semantic Analysis

(d) Code Generation

xi) Which of these features of assembler are Machine-Dependent

(a) Instruction formats

(b) Addressing modes

(c) Program relocation

(d) All of the mentioned

xii) A compiler can check?
- (a) Logical Error
- (b) Syntax Error
- (c) Both Logical and Syntax Error
- (d) Not Logical and Syntax Error

xiii) Which of the following system software resides in the main memory always
- (a) Text Editor
- (b) Assembler
- (c) Linker
- (d) Loader

xiv) Which one of the following is true at any valid state in shift-reduce parsing?
- (a) At the bottom we find the prefixes
- (b) None of the mentioned
- (c) Stack contains only viable prefixes
- (d) Stack consists of viable prefixes

xv) Input to code generator
- (a) Source code
- (b) Intermediate code
- (c) Target code
- (d) All of the mentioned

Section - B

Short Answer Type Questions

$5 \times 5 = 25$

Q.2. What is the difference between NFA and DFA?

OR

Construct an NFA for the regular expression 01*+1.

Q.3. Draw several phases of compiler

OR

What do you understand by context free grammar?

Q.4. What do you mean by ambiguity of grammar?

OR

Write down the difficulties with top-down parsing.

Q.5. Explain the term parsing.

OR

How can we eliminate the left recursion in top down parsing?

Q.6. Write short notes on symbol table organization.

OR

What are the various classifications of errors?

Section - C
Long Answer Type Questions

$5 \times 9 = 45$

Q.7. Prove that, for every non deterministic finite automata there is an equivalent deterministic finite automata.

OR

Construct an NFA equivalent to the following regular expression ((10)+(0+1))*01.

Q.8. Write notes on interpreter with its merit and demerits. Write the tools that are needed in compiler construction.

OR

Write short notes on Bootstrapping.

Q.9. Explain various uses of lexical analysis and its input buffering.

OR

List various lexical errors and action to be taken to recover from lexical errors.

Q.10. Explain syntax analysis and its functions.

OR

What do you mean by operator precedence parsing?

Q.11. List out the data structure used in symbol table.

OR

Explain how error recovery can be performed in operator precedence parsing.

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