TCS-602 1091

Even Semester Examination 2018-19

B.Tech.(Computer Science Engg.) (SEMESTER-VI)

COMPILER DESIGN

Time: 03:00 Hours **Max Marks :100**

SECTION-A

(Attempt **any four**. All question **carry equal** marks) [4×5 = (20 marks)]

Q1. Define the following terms:

a.) Phases and passes

b.) BNF notation

c.) Operator Precedence

d.) Error Detection & Recovery

e.) Loop optimization

SECTION-B

(Attempt **any four**. All question **carry equal** marks) [4×5 = (20 marks)]

1. Describe the tasks that are performed by semantic analysis phase of compiler.

2. Find the FIRST and FOLLOW function for the following grammar :

S →1 = R

S→R

L→*R

L → id

R→L

3. What do you mean by Looping unrolling? Explain its importance.

4. Explain Finite state machines and regular expressions with the help of one example.

5. Explain with the help of diagram the Global Data-Flow analysis.

SECTION-C

(Attempt **any four**. All question **carry equal** marks) [4×5 = (20 marks)]

1. Explain the concept of input buffering with sentinel in lexical analysis.

2. Construct SLR parsing table for the following grammar: S → SS + / SS* / a.

3. Explain the context free grammar with suitable example.

4. Differentiate the syntactic phase errors and semantic errors.

5. Define the code optimization with the help of any example.

SECTION-D

(Attempt **any two**. All question **carry equal** marks) [2×10= (20 marks)]

1. Write the algorithm for finding the canonical collection of LR(O) items. Define the closure (1) and goto (1, x) functions.

2. Check whether the following grammar is ambiguous or not. If it is ambiguous, remove the ambiguity from the grammar :

   E → E+T / T

   T → T^F / F

   F → (E) / id

3. Construct NFA to DFA for the regular j expression (a / b)*ab*a. First show that constrictions of NFA then demonstrate the DFA construction.

SECTION-E

(Attempt **any two**. All question **carry equal** marks) [2×10= (20 marks)]

1. What is Translator? Discuss the role of various phases of complier in translation of source code to target code.

2. Explain the importance of intermediate code generation phase in phases complier. What are the different issues that must be considered in the selection of intermediate codes?

3. Explain the DAG representation of basic blocks, value numbers and algebraic laws with the help of suitable example.

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