BCA(III) — COMP/3/
XXII/11

2011

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer from **both** the Groups as directed.*

Group – A

(Objectives Type Questions)

1. Choose the correct answer of the following :

$$2×10 = 20$$

(a) _____ is a tool used for automatically generating Lexical Analyzers.

   (i) LPDT

   (ii) LEX

   (iii) YACC

   (iv) LALR

JX – 32/2 (Turn over)

(b) The _____ phase converts the intermediate code into a sequence of machine instructions.

(i) Code Generation

(ii) Code Optimization

(iii) Intermediate Code

(iv) Address Code

(c) _____ is a data structure which is used by compiler to keep track of scope and binding information about names.

(i) Symbol Table

(ii) Source Program

(iii) Software Program

(iv) None of the above

(d) The _____ between the application domain and the execution domain is bridged by the software engineering steps.

(i) Semantic Gap

(ii) Execution Gap

(iii) Specification Gap

(iv) None of the above

(e) A _____ is a logically cohesive operation that takes as input one representation of the source program and produces as output as another representation.

(i) Phase

(ii) Pass

(iii) Semantic Analysis

(iv) All of the above

(f) Dynamic memory allocation is implemented using _____ techniques.

(i) Stack

(ii) Queue

(iii) Heaps

(iv) Both (i) and (iii)

(g) _____ grammars are known as context sensitive grammars.

(i) Type 0

(ii) Type 1

(iii) Type 2

(iv) Type 3

(h) A Lexical Analysis identifies:

(i) =

(ii) *

(iii) /

(iv) All of the above

(i) A sequence of derivations or reductions reveals the syntactic structure of a string with respect to G, that syntactic structure is called _____ .

(i) Noun Phrase

(ii) Article

(iii) Sentence

(iv) Parse Tree

(j) The portion of one or more phases are combined into a module is known as _____.

(i) Pass

(ii) Phase

(iii) Semantic

(iv) Syntax

Group – B

(Long-answer Type Questions)

Answer any **four** of the followings :   15×4 = 60

2. Explain DAG representation of the basic blocks with suitable example.

3. Discuss the principle sources of optimization. What are the various ways of calling procedures ?

4. Elaborate storage organization and write detailed notes on parameter passing.

5 How back patching can be used to generate code for Boolean expressions and flow of control statements ?

6. How the types and their relative addresses of declared names are computed and how scope information is dealt with ?

7. Explain the three general approaches to the implementation of Lexical Analyzer. What are the possible errors recovery actions in Lexical Analyzer ?

8. Let A be a 10 * 20 array with low 1 = low 2 = 1. Here n1 = 10 and n2 = 20. Take w to be 4. Give the annotated parse tree for the assignment x : = A[Y,Z].

9. What are the various types of calling procedure ? Explain in detail.

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