Total No. of Questions: 05

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Roll No._____

BTCS601

VII Semester Examination, December - 2022

B.Tech.+M.B.A./B.Tech.+M.Tech.(CSE,CCE,CSE-CC,CSE-CF,CSE-BDA,CSE-AII,CSE-BDAI,CSE-CMCI,CSE-ES,CSE-ICS,CSE-MA,IT)

Compiler Design

Choice Based Credit System (CBCS)

Time: 3 Hrs. **Maximum Marks: 60**

Minimum Pass Marks: 24

Note: *All questions carry equal marks, out of which part'A' and 'B' carry 3 marks and part 'C' carries 6 marks. From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.*
Draw neat diagram, wherever necessary.
Assume suitable data wherever necessary.

Q.1(A) Write short notes on the following:

I. Boot-strapping

II. Cross-Compilér

III. Look-ahead Operator **03**

(B) Provide the details of Compiler Construction Tools. **03**

(C) Describe the Compiler and its phases with a neat and clean diagram. **06**

OR

Give a brief description of tools "LEX" and "YACC".

Q.2(A) Give classifications of parsing techniques. **03**

(B) List differences between the Parse tree and the Syntax tree? **03**

(C) Explain the LL (1) Parsing (Non-Recursive Predeictive Parsing) Technique by using the following Grammar for the String id*id+id;

$E \rightarrow E+T \mid T$

$T \rightarrow T*F \mid F$

$F \rightarrow (E) \mid id$ **06**

OR

Explain the LR Parser. Explain its features and Types.

Q.3(A) What are Syntax Directed Translations? Also, explain its roles. **03**

(B) Explain the various Parameter Passing Techniques. **03**

Contd...

(C) What do you mean by three address codes? Generate the following three address for -(a+b)*(c+d)+(a+b+c)

I. Quadruples II. Triples III. Indirect Triples **06**

OR

Write Short notes on:

I. S-attribute Definitions (Synthesized)

II. L-attribute Definitions (Inherited)

III. Dependency Graphs

Q.4(A) What do you mean by optimization technique? **03**

(B) What do you mean by Activation Record? **03**

(C) Construct the DAG for the following basic blocks

I.	t1=4*i	II.	t2=a[t1]	III.	t3=4*i
IV.	t4=b[t2]	V.	t5=t2*t4	VI.	t6=prod+t5
VII.	prod=t6	VIII.	t7=i+1	IX.	i=t7

06

OR

What is the difference between dynamic and static storage management? Explain the importance of run time storage management in compiler.

Q.5(A) What do you understand by code generation? Explain the general issues in designing a code generator? **03**

(B) Generate the code for the following expression using only one register.

d := b * c

e := a + b

b := b * c

a := e - d **03**

(C) What is a basic block? Discuss various transformations that can be done on basic blocks with the help of a suitable example. **06**

OR

Explain global data-flow analysis with its use in code optimization.

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