PAPER ID-310430

Subject Code: KIT052

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM-V) THEORY EXAMINATION 2020-21
COMPILER DESIGN

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

Qno.	Question	Marks	CO
a.	Differentiate between compiler and interpreter.	2	CO1
b.	What is the difference between pass and phase?	2	CO1
c.	Discuss the need to eliminate Left Recursion.	2	CO2
d.	What is parsing? Explain parse tree.	2	CO2
e.	Name different types of intermediate codes forms.	2	CO3
f.	Describe how addressing modes can be used for reducing the memory access time?	2	CO3
g.	Differentiate synthesis and inherited translation.	2	CO4
h.	What is meant by handle pruning?	2	CO4
i.	Describe loop unrolling and loop jamming.	2	CO5
j.	Discuss various issues to be considered during code generation?	2	CO5

SECTION B

2. Attempt any *three* of the following: 3 x 10 = 30

a.	Explain in detail the various phases of compilers with neat diagram**.**	10	CO1
b.	What is parser? Explain different parsing techniques and differentiate them.	10	CO2
c.	Write SDT translation for switch statement.	10	CO3
d.	What is meant by activation of procedure? How it can be represented with activation tree and record? Explain with quick sort example.	10	CO4
e.	What is DAG? Construct a DAG for the following expression: a+a*(b-c) + (b-c)*d	10	CO5

SECTION C

3. Attempt any *one* part of the following:

a.	How do you specify the tokens? Differentiate token, lexeme, and pattern with suitable examples. And draw transition diagrams also.	10	CO1
b.	Construct an NFA for the following regular expression: R=(a+b)*abb Also convert same into DFA	10	CO1

4. Attempt any *one* part of the following:

a.	State and explain the rules used to compute first and follow functions with the help of S→XS|DS|∈, X→Y|Zb|aY, Y→cZ, Z→ e	10	CO2
b.	Test whether the grammar is LL (1) or not, and construct a predictive parsing table for following grammar: $S \rightarrow iEtSS_1 / a$, $S_1 \rightarrow eS / \varepsilon$, $E \rightarrow b$	10	CO2

5. Attempt any *one* part of the following:

a.	Construct CLR parse table for S→AA, A→ aA | d	10	CO3
b.	Convert the following statements into the Quadruple, Triple, and Indirect triple representation: P=-Q*(R + S)	10	CO3

6. Attempt any *one* part of the following:

a.	What are the contents of a symbol table? Explain in detail the symbol table organization for Block-Structured languages.	10	CO4
b.	Discuss the process of error recovery in LR parsing	10	CO4

7. Attempt any *one* part of the following:

a.	What is machine dependent optimization? Explain how peephole techniques functions in this?	10	CO5
b.	Describe the procedure to generate object code for X=Y+Z*15 through different phases of compiler?	10	CO5