(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JULY 2023

Paper Code: ETCS-302 ***Subject: Compiler Design***

Time: 3 Hours ***Maximum Marks: 75***

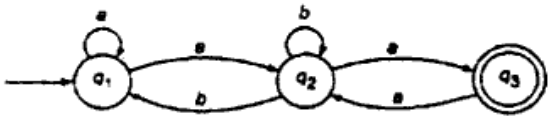
Note: Attempt five questions including Q. No. 1 which is compulsory. Assume missing data. Select one question from each unit.

Q1. Answer the following questions: **(5*5=25)**

a) What is Backpatching? Explain with the help of example.
b) Distinguish between Compiler and Interpreter briefly.
c) Explain various principle sources of Code Optimization.
d) What is DAG? What are the advantages of DAG?
e) What is the role and various functions of Lexical analyser? Explain briefly.

UNIT-I

Q2. a) Discuss the architecture of Compiler with its phases in details **(7.5)**
b) Consider the transition diagram **(5)**



Convert the above finite automata into the regular expression.

Q3. a) What is bottom-up parsing? How to construct the SLR parsing table? Explain with the help of an example. **(6.5)**

b) For the Grammar give below: **(6)**
E-> TE'
E'->+TE'/ε
T->FT'
F->*FT'/ε
F->(E)/id
Construct the Predictive Parsing Table. Whether this grammar is LL(1) or not?

UNIT-II

Q4. a) What is syntax directed translation? How the syntax directedtranslation schemes aredescribed. Explain with the help of example. **(6)**

b) What is intermediate code? What are the various ways to represent the intermediate code? Explain postfix notation, parse trees and syntax trees, three address code, quadruples, and triples with the help of examples. **(6.5)**

Q5. a) Describe the language for specifying Lexical Analyzer with the help of example. **(6)**

b) Write a short note on: Type Checker, Type Conversion and Boolean Expressions. **(6.5)**

UNIT-III

Q6. a) What information is contained by the Symbol Table? Explain the contents and its capabilities of symbol table. **(7)**

b) What is error? Explain sources of errors and explain various types of errors at each phase of compiler. **(5.5)**

Q7. a) Describe various data structures of symbol tables in detail. **(5.5)**

b) What are the different storage allocation strategies in the runtime environment of the compiler? Explain. **(7)**

UNIT-IV

Q8. a) What is code generation? Explain various issues of Code Generation. **(6.5)**

b) Briefly explaina) code generation from DAGs b) Value number and algebraic laws **(6)**

Q9. a) How Peep Hole Optimization is useful in Code Optimization& Code Generation phase. Explain briefly. **(5.5)**

b) What are basic blocks and Flow Graphs? Explain with the help of examples. **(7)**

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