

Roll No.

OLE-24488
B. Tech. 7th Sem. (CSE)
Examination – April, 2021

COMPILER DESIGN

Paper : CSE-405-F

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Remaining, Attempt *one* question from each unit. Each question carries equal marks. Attempt *five* Questions in all.

1. Write the answers of the following : $4 \times 5 = 20$
- (a) What is Language Translator ? Why we need of Translators ? Explain.
 - (b) Differentiate Parse Tree and Syntax Tree using relevant example.
 - (c) Define Syntax Errors. How these errors are removed by compiler ?

- (d) Define Parsing and Explain the Role of Parser.
- (e) Write short note on Machine Dependent Code.

UNIT – I

- 2. (a) What is Compiler ? Explain the different phases of the compiler in detail. 10
- (b) Explain various compiler construction tools. 10
- 3. (a) What is Regular Expression ? How it is useful in compiler design ? Explain in detail. 10
- (b) How do we implement lexical Analyzer ? Explain with the help of example. 10

UNIT – II

- 4. (a) What is Shift-Reduce Parsing ? Explain with the help of example. 10
- (b) Test whether the Grammar is LL (1) or not and construct a predictive parsing table for it. 10

$$S \rightarrow AaAb \mid BaBa, A \rightarrow e, B \rightarrow e$$

- 5. Check whether the Grammar is LR (0) or not. 20

$$E \rightarrow E + T \mid T$$

$$T \rightarrow T * F \mid F$$

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

UNIT – III

6. (a) How Syntax Directed Translation (SDT) Scheme is implemented ? Explain 10
- (b) Explain the various types of errors generated during the various phases of the compiler. How do we recover from these errors ? 10
7. (a) What is the use of Symbol Table ? Explain any two data structures associated with Symbol Table. 10
- (b) What is intermediate code representation ? Explain quadruple, triples and indirect triples with the help of example. 10

UNIT – IV

8. Write Short Note on the following :
- (a) Peephole Optimization. 10
- (b) Register allocation for temporary and user-defined variables. 10
9. (a) Explain code optimization and its utility with example. 10
- (b) Write short note on Code Generation. 10