Bachelor of Science (B.Sc.I.T.) Semester—IV Examination

COMPILER CONSTRUCTION

Paper—V

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.
(2) Draw neat and labelled diagrams wherever necessary.

EITHER

1. (a) What is translator ? Explain interpreter, compiler and assembler. 5
(b) What is addressing mode ? Explain three-addressing modes. 5

OR

(c) Discuss bootstraping and bookkeeping in compilation with suitable example. 5
(d) How error handling and table management is performed ? Explain. 5

EITHER

2. (a) Explain lexical and syntactic structure of language. 5
(b) Explain r-value and l-value with suitable example. 5

OR

(c) Explain storage management in HLL. How static and dynamic storage is managed in HLL. ? 5
(d) What different data structures are supported by HLL ? Explain any two in detail. 5

EITHER

3. (a) What is syntax free grammar ? Explain it with example. 5
(b) Draw parse tree for the following expression :
(i) $(a + b/c + d^2) * a + b * d^2$
(ii) $a^x + b^{x^2} + c^{x^3}$. 5

OR

(c) What is lexical analysis ? Explain it with example. 5
(d) Draw transition diagrams for the following :
(i) Integers Number
(ii) Real numbers
(iii) Strings. 5

EITHER

4. (a) Explain storage allocation symbol table and information needed for storage allocation. 5
(b) How loop optimization is performed in the compilation process ? 5

OR

(c) What is Directed Graph (DAG) ? How is it used in representing basic block ? Explain it with example. 5
(d) Explain the following :
(i) Shift reduce parsing
(ii) Predictive parsing. 5

5. Attempt **ALL** :
(a) Draw phase diagram of compilation process. 2½
(b) List different types of tokens in HLL with example. 2½
(c) What is String ? Explain it with example. 2½
(d) Write code generation algorithm. 2½