BICS-016

B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

ロロ655

June, 2019

BICS-016 : SYSTEM PROGRAMMING AND COMPILER DESIGN

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any* **seven** *questions. All questions carry equal marks.*

1. Define assembler. What are the phases of an assembler ? Explain with a neat diagram.   *10*

2. Draw the design of a macro-preprocessor and explain data structure in it with the help of an example.   *10*

3. Explain the code generation phase of compiler design using DAG.   *10*

4. (a) Write the postfix notation of

    (i) (a + b) * (c + d), and

    (ii) a * (b + c).   *5*

    (b) Give the method of converting NFA into DFA with an example.   *5*

5. (a) What is Parse tree ? How can the ambiguity be removed ? Explain with an example. *5*

(b) Differentiate between bottom-up and top-down parsing techniques. *5*

6. (a) Explain the various phases of compiler. *5*

(b) What are the various compiler construction tools ? Explain any one of them. *5*

7. (a) What is symbol table ? Discuss the various data structures used in symbol table. *5*

(b) List the problems associated with code generation phase of compiler design. *5*

8. Describe the various register allocation optimization techniques with examples. *10*

9. (a) What are the different steps in compiling process ? Briefly explain. *5*

(b) What is the behaviour of the LR-parser ? Write the LR parsing algorithm. *5*

10. Write short notes on any *two* of the following : *2×5=10*

(a) Boot Strapping

(b) Predictive Parser

(c) Lexical Analysis