

Total No. of Questions : 12]

P1882

SEAT No. :

[Total No. of Pages : 2

[5059]-202

B.E. (Computer Engg.)

PRINCIPLES OF COMPILER DESIGN

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate answer books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Write a LEX program to count no. of characters, words and lines in a given input text file. **[8]**
- b) Explain with a suitable example, the techniques used in YACC to resolve shift-reduce and reduce-reduce conflicts. **[8]**

OR

- Q2)** a) What is difference between phase and a pass of a compiler? Explain machine dependent and machine independent phases of a compiler. **[8]**
- b) Write the rules to calculate FIRST & FOLLOW sets. **[8]**

- Q3)** a) Define and explain following terms with example. **[8]**
- i) Dependency Graph
 - ii) L-attributed definition
- b) Explain the following terms with suitable examples: **[8]**
- i) Synthesized Attributes
 - ii) Marker Non Terminal Symbols

OR

- Q4)** a) What is mean by syntax directed definitions? Give syntax directed definition for any example of arithmetic expression. **[8]**
- b) Explain Type system and Type expressions. **[8]**

P.T.O.

- Q5) a)** How would you generate intermediate code for the flow of control statements? Explain with examples. [8]
- b)** How Back patching can be used to generate code for Boolean expressions and flow of control statements? [10]

OR

- Q6) a)** List the commonly used intermediate representation. Give one example of each of one. [8]
- b)** Write a translation scheme to generate intermediate code for assignment statements with array references. [10]

SECTION - II

- Q7) a)** Discuss: Static and Dynamic Scope. [8]
- b)** Explain in detail about Run Time Storage Allocation. [8]

OR

- Q8) a)** What are the two approaches of implementing Dynamic Scope? Give the difference between the two. [8]
- b)** What is an activation record? Explain each of its fields. [8]

- Q9) a)** Discuss various issues in code generation phase. [8]
- b)** What is a DAG? With suitable illustrations explain the role of DAG in code generation phase. [8]

OR

- Q10)a)** What is loop transformation? What are its types? [8]
- b)** Write short note on strength reduction and variable propagation. [8]

- Q11)a)** What are induction variables? Explain induction variable elimination algorithm? [8]
- b)** What do you mean by a common sub-expression? Discuss the algorithm for elimination of common sub-expression. [10]

OR

- Q12)a)** Write a short note on data flow analysis. [8]
- b)** Explain fundamental data flow properties. [10]

