Total No. of Questions : 12]

SEAT No. :

P2790

[Total No. of Pages : 2

[5154]-172
B.E. (Computer Engg.)
PRINCIPLES OF COMPILER DESIGN
(2008 Course) (Semester - I) (410442)

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 and digits in a given input text file. **[8]**

b) Explain what is shift-reduce and reduce-reduce conflicts. **[8]**

OR

Q2) a) What is front end and back end of compiler? Explain in detail. **[8]**

b) What are FIRST & FOLLOW sets, explain with suitable example calculation of these 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) Type Expression

ii) DAG

OR

Q4) a) What is mean by 'syntax directed definitions? Give syntax directed definition for any example of arithmetic expression. **[8]**

b) Draw syntax tree, annotated parse tree, parse tree for a+b*c. **[8]**

P.T.O.

Q5) a) Write a syntax-directed definition to translate 'switch' statement. With a suitable example show the translation of the source language 'switch' statement. **[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) Explain the mechanism for translating 'printf' function in C. **[8]**

b) Explain in detail about Run Time Storage Allocation. **[8]**

OR

Q8) a) Explain with suitable example the mechanism used by compiler to handle procedure parameters. **[8]**

b) What is an activation record? Explain each of its fields. **[8]**

Q9) a) Write short note on transformation on basic blocks. **[8]**

b) Write short note on DAG. **[8]**

OR

Q10)a) Explain code generation algorithm. **[8]**

b) Write short note on strength reduction and variable propagation. **[8]**

Q11)a) Write short note on Local Optimization. **[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 meet over paths. **[8]**

b) Explain lterative data flow analysis. **[10]**