Total No. of Questions : 12]

SEAT No. :

P797

[Total No. of Pages : 3

[4659] - 209 B.E. (I.T.) (Semester - I) COMPILER DESIGN (2008 Pattern) (Elective - I (C))

[Max. Marks : 100

Instructions to the candidates:

Time : 3 Hours]

- 1) Answer three questions from each section.
- 2) Answers to the two Sections should be written in separate answer-books
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to right indicate full marks.
- 5) Assume suitable data, if necessary

SECTION - I

- *Q1)* a) Write merits and demerits of compiler and interpreter. [6]
 - b) Explain input buffering for lexical analyzer with example. Write FP and BP movement concept with algorithm? Also explain role of symbol table in lexical analysis. [10]

OR

- Q2) a) Write different issues in lexical analysis. Also explain lexical errors and its recovery techniques for each error. [6]
 - b) Write a lex program to display no. of character, words, lines, paragraphs, vowels and consonants and single line and multiline comments. [10]
- Q3) a) Explain error detection and recovery for top-down and bottom-up parsing.[6]
 - b) For a given grammar

 $S \rightarrow iEtS \mid iEtSeS \mid a$

 $E\!\rightarrow\!b$

Left factor the grammar and find First and Follow and build predictive parsing table. Is this LL (1) grammar yes or no, Justify. [12]

- Q4) Construct LALR parsing table for the grammar
 - $S' \rightarrow S$ $S \rightarrow CC$
 - $C \rightarrow cC \mid d$
- Explain elimination of left recursion from a translation scheme with **Q5)** a) example. [8]
 - Explain syntax tree and create annotated tree with syntax tree concept b) and create DAG using one example. [8]

OR

- Construct syntax tree for a-4+c and directed acyclic graph for **a+a*(b-c) Q6)** a) +(b-c)*d and differentiate between syntax tree and directed acyclic graph.[8]
 - Write short notes on: b)

- Short circuit code i)
- SDD for flow of control statement ii)

iii) SDD for case statement

SECTION - II

Q 7) a)	Explain following with suitable example.				[8]
	i)	Activation record	ii)	Control stack	
	iii)	Binding and storage	iv)	Displays.	
b)	Explain types of Scope in detail. Illustrate with example.				[8]
	OR				
Q8) a)	Explain different parameter passing techniques with proper example.[8]				

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- b) How the records of nested procedures are maintained at run time, explain with the help of neat diagram. (Consider all cases). [8]
- **Q9)** a) Explain Display with example, why it is used. [4]
 - b) Write Quadruple, Triple and Indirect Triple representation of following expression d= -(a-b) + (a-c) + (a-c) with explanation. [12]

OR

- **Q10**)a) What is Liveness? Explain Liveness calculation with suitable example.[10]
 - b) Write register allocation techniques and explain with suitable example.[6]
- *Q11*)a) Explain implementation of single and multi-inheritance using fixed offset method and trampoline method in compiler with block diagram. [10]
 - b) How the compiler handles the constructors in object oriented programming? Explain with example. [8]

OR

- *Q12*)a) Explain implementation of class hierarchy without inheritance by compiler with block diagram.[8]
 - b) Difference in class based and object based languages. Explain object oriented feature in compiler context. [10]

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