**[Total No. of Printed Pages:1]** **CODE NO:- Z-66**

**FACULTY OF ENGINEERING & TECHNOLOGY**

**B.E (CSE) Year Examination - May – 2015**

**Principles of Compiler Design**

**(Revised)**

**[Time: Three *Hours*]** **[Max. Marks:80]**

"Please check whether you have got the right question paper."

i) Question no. 1 & 6 are compulsory
ii) Attempt any other two questions from each section
iii) Assume suitable data if necessary.
iv) Figures to the right indicate full marks.

SECTION-A

| | | | |
|---|---|---|---|
| Q.1 | a) | With suitable example, explain tokens, patterns & lexemes. | 05 |
| | b) | What is handle pruning in bottom up parsing? | 05 |
| Q.2 | a) | Write short note on input buffering. | 07 |
| | b) | What is backtracking in recursive descent parsing. Construct the parse tree for the input string w=cad. The given grammer is : $S \rightarrow cAd$ $A \rightarrow ab/a$ | 08 |
| Q.3 | a) | With suitable diagram explain design of Lexical Analyzer diagram generator. | 07 |
| | b) | What is Automatic parser generator yacc? Write a yacc program for simple desk calculator . | 08 |
| Q.4 | a) | Explain the specification of tokens. | 07 |
| | b) | Write the algorithm to compute FIRST and FOLLOW position for a nonterminal. Assume suitable example. | 08 |
| Q.5 | a) | For the following statement write the output after every phase of compilation. Position=initial +rate *60. | 07 |
| | b) | Consider the grammar: $E \rightarrow E + T/T$ $T \rightarrow T * F/F$ $F \rightarrow (E)lid$ Show the sequence of moves made by the shift, reduce parser on the i/p id*id | 08 |

SECTION-B

| | | | |
|---|---|---|---|
| Q.6 | a) | Explain about syntax trees and parse trees. | 05 |
| | b) | With suitable example, explain basic blocks and flow graphs. | 05 |
| Q.7 | a) | Discuss various issues in the design of code generator. | 07 |
| | b) | Write short note on type checking and type conversion. | 08 |
| Q.8 | a) | Discuss in detail about Inherited and synthesized attributes. | 07 |
| | b) | Discuss following techniques in optimization of basic blocks.<br>i) Finding bcal common subexpressions<br>ii) Dead code elimination<br>iii) Use of Algebraic identities. | 08 |
| Q.9 | a) | Write short note on loop Jamming, loop folding & loop unrolling. | 07 |
| | b) | Write short note on register allocation & assignment. | 08 |
| Q.10 | a) | With suitable example, explain quadruples, triples and indirect triples. | 07 |
| | b) | Write short note on peephole optimization. | 08 |