Total No. of Printed Pages:2

SUBJECT CODE NO: H-375
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (CSE)
Principles of Compiler Design
(REVISED)

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

Please check whether you have got the right question paper.

N.B
     i.   Q. No.01 and 06 are compulsory.
    ii. Attempt any other two question from each section.
  iii. Assume suitable data if necessary.

Section A

Q.1   a) Differentiate between parse tree and syntax tree?   05

        b) What are translators? Explain compilation and execution process?   05

Q.2   a) What is compiler? For the following statement write the output after every phase of compilation?   07
Example : position = initial + rate * 60

        b) Discuss the structure of LEX program? Write a LEX program to recognize letters, digits, white spaces & numbers?   08

Q.3   a) Calculate the following Grammar :   07
$S \rightarrow aB \mid bA$
$A \rightarrow a \mid as \mid bAA$
$B \rightarrow b \mid bs \mid aBB$
Derive the string "aaabbabba" using above grammar by left most derivation and right most derivation? Also draw parse tree for both?

        b) What is top – down parsing? What are the problem with top down parsing?   08

Q.4   a) Explain the specifications of tokens?   07

        b) What is Automatic parser generator yaac? Write a yaac program for simple desk calculator?   08

Q.5   Write short note on (any three)   15

        a) Input buffering
        b) LALR
        c) FIRST & FOLLOW with example
        d) Bootstrapping

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Section B

Q.6	a)	Explain machine independent optimization with suitable example?	05
	b)	Explain loop unrolling and loop jamming?	05
Q.7	a)	Give the all forms of cut immediate codes for following expression? $(p + q) * (r - s) + (p - q)$.	07
	b)	Give SDT scheme for desk calculator? Illustrate the scheme for the i/p "$12 + 3 * 5$" along with its parse tree.	08
Q.8	a)	Discuss the design issues in code generator?	07
	b)	Explain the characteristics of peephole optimization?	08
Q.9	a)	What is DAG? Construct DAG for following basic block.	07

$$a := b * c$$
$$d := b$$
$$e := d * c$$
$$b := e$$
$$f := b + c$$
$$g := f + d$$

	b)	Write short note on type checking and type conversion?	08
Q .10		Write short note on (any three)	15

a) Object programs
b) Application of DAG
c) Global data flow analysis
d) Environment of code generator.