Con/2332–07.   (REVISED COURSE)   ND–9374

(3 Hours)   [Total Marks : 100

N.B. : 1) Question number 1 is compulsory.
2) Attempt any four questions out of remaining six questions.
3) Assumptions made should be clearly stated.
4) Figures to the right indicate full marks.
5) Assume suitable data wherever required but justify the same.

Q. No.1 a) Explain with the help of flowchart and data structures, working of single (10)
Pass Assembler.

b) Explain the role of finite state automata and regular expressions in   (10)
compiler design.

Q.No.2 a) Consider the following grammar   (10)

$E \rightarrow E + T$
$E \rightarrow T$
$E \rightarrow T * F$
$T \rightarrow F$
$T \rightarrow (E)$
$F \rightarrow id$

Show the shift reduce parser action for the string   id+id+id*id

b) Explain the design of Absolute loader.   (10)

Q. No.3 a) Explain run time storage organization in detail.   (10)
b) Explain the design of direct linking loader.   (10)

Q. No.4 a) Explain the fundamentals of language processing .   (10)
b) Write short notes on   (10)
(i) Programming environments.
(ii) SPARC Assembler .

Q.No.5 a) Explain syntax directed translation. Give syntax directed definition to (10)
translate infix expressions to postfix expressions.

b)(i) Consider the following CFG   (10)

$E \rightarrow E + T \mid T$
$T \rightarrow T * F \mid F$
$F \rightarrow (E) \mid I$
$I \rightarrow a \mid b \mid c$

Remove the left recursion from above grammar.

(ii) Write short note on ANSI C macro language.

Q. No.6 a) Explain design of one pass macroprocessor to handle nested macro calls. (10)
What are the different databases needed? Explain.

b) Explain dynamic linking and dynamic loading.   (10)

Q. No.7 a) Explain different organizations to organise the symbol table in assembler (10) design. Compare these organizations with respect to storage and processing time requirements.

b) Write short notes on (10)
(i) Static and dynamic binding.
(ii) Design of Macro Assembler.