F 3098 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Fifth Semester

Branch : Information Technology

IT 010 505—LANGUAGE TRANSLATORS (IT)

(Regular—New Scheme)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 marks.

1. What is a Regular expression ? What is its role in lexical analysis ?
2. What are ambiguous grammars ? Give an example.
3. Give the applications of syntax-directed translation.
4. What is back patching ?
5. What is global data flow analysis ?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 marks.

6. What are tokens, patterns and lexemes ?
7. What is meant by panic mode error recovery ? Explain.
8. What are S-attributed and L-attributed definitions ? Explain.
9. Translate the expression $a := -b / (c - d) * e$ into quadruple and triple representations.
10. Give the algorithm for live variable analysis.

(5 × 5 = 25 marks)

Part C

Each full question carries 12 marks.

11. (a) Explain the role of input buffering in lexical analysis

Or

(b) Using Thompson's construction technique, construct an NFA the regular expression :

$(a/b)^* b\, b\, (a/b)^*$.

Turn over

12. (a) Show that the following grammar is not LL (1) :

$$S \rightarrow i\,Ac\,S \mid i\,A\,c\,Se\,S \mid a$$
$$A \rightarrow b.$$

Or

(b) Explain the algorithm to make an ACTION and GOTO entry in SLR parsing table.

13. (a) Explain the procedure for constructing a syntax tree with an example.

Or

(b) What are the different storage allocation strategies ? Explain.

14. (a) Explain the different methods for translating a Boolean expression into three-address code.

Or

(b) What is a DAG ? Explain its construction.

15. (a) Explain the principal sources of optimisation.

Or

(b) Explain the various loop optimisation techniques.

(5 × 12 = 60 marks)