



**PART – B (5 × 16 = 80 Marks)**

11. (a) Describe the various phases of compiler and trace it with the program segment  
( position:= initial + rate \* 60). **(16)**  
**OR**
- (b) (i) Explain language processing system with neat diagram. **(8)**  
(ii) Explain the need for grouping of phases. **(4)**  
(iii) Explain various Error encountered in different phases of compiler. **(4)**
12. (a) (i) Differentiate between lexeme, token and pattern. **(6)**  
(ii) What are the issues in lexical analysis ? **(4)**  
(iii) Write notes on regular expressions. **(6)**  
**OR**
- (b) (i) Write notes on regular expression to NFA. Construct Regular expression  
to NFA for the sentence ( a/b)\* a. **(10)**  
(ii) Construct DFA to recognize the language ( a/b)\* ab. **(6)**
13. (a) (i) Construct Sack implementation of shift reduce parsing for the grammar **(8)**  
E → E+E  
E → E\*E  
E → (E)  
E → id and the input string id1 + id2 \*id3  
(ii) Explain LL(1) grammar for the sentence S→iEts | iEtSeS | a E→b. **(8)**  
**OR**
- (b) (i) Write an algorithm for Non recursive predictive parsing. **(6)**  
(ii) Explain Context free grammars with examples. **(10)**
14. (a) (i) Construct a syntax directed definition for constructing a syntax tree for  
assignment statements. **(8)**  
S → id := E  
E → E1 + E2  
E → E1 \* E2  
E → -E1  
E → ( E1)  
E → id  
(ii) Discuss specification of a simple type checker. **(8)**  
**OR**
- (b) Discuss different storage allocation strategies. **(16)**
15. (a) Explain Principal sources of optimization with examples. **(16)**  
**OR**
- (b) (i) Explain various issues in the design of code generator. **(8)**  
(ii) Write note on simple code generator. **(8)**