

BE Semester- 7th (Computer Engineering) Question Bank

(Compiler Construction)

All questions carry equal marks(10 marks)

Q.1	Draw and explain the different phases of compiler.
Q.2	Briefly explain the problems associated with top-down parser.
Q.3	Show that the grammar below is ambiguous. $S \rightarrow S + S \mid S * S \mid id$ Give an unambiguous grammar for the above grammar such that + has higher priority, * has less priority and both are right associative.
Q.4	Given the grammar $S \rightarrow a \mid (L)$ $L \rightarrow L, S \mid S$ Check the resultant grammar is LL(1) or not.
Q.5	What is symbol table? Discuss any two data structures suitable for it and compare their merits and demerits.
Q.6	Explain the different error recovery strategies.
Q.7	a) Give a CFG for the language of all non-palindromes over $\{0, 1\}^*$ b) Draw the parse tree for following: $S \rightarrow S S \mid (S) \mid ()$
Q.8	Briefly explain the main issues in code generation.
Q.9	Describe the method of generating intermediate code for the flow control statements.
Q.10	Explain the left-recursion and show how it is eliminated. Describe the algorithm used for eliminating the left recursion.
Q.11	Explain the analysis synthesis model of compilation. List the factors that affect the design of compiler. Also List major functions done by compiler.
Q.12	Explain non-recursive predictive parsers. Draw the block diagram of it.
Q.13	Write the two methods used in lexical analyzer for buffering the input. Which technique is used for speeding up the lexical analyzer?
Q.14	Write ambiguous and unambiguous production rules for if then else construct. Illustrate parsing using both types of rules by giving an example. Also explain left factoring and its use.
Q.15	Write a short note: a) lexical errors b) synthesized and inherited attribute
Q.16	What are passes? What is the effect of reducing the number of passes?
Q.17	Explain how a compiler handles syntax error?
Q.18	What is a dependency graph? Draw dependency graph for the expression $E \rightarrow E_1 + E_2$
Q.19	Explain the following in relation to optimization. 1) Common subexpressions 2) Copy propagation.
Q.20	Explain peephole optimization.
Q.21	What is the difference between annotated parse tree and parse tree?
Q.22	Explain three address code mechanisms for intermediate code representation.

Q.23	How to perform closure and GOTO in case of LR parsing? Give example.
Q.24	Explain the use of loaders and linkers.
Q.25	Explain with suitable example the calculation of the FOLLOW set.
Q.26	Explain-prefix, suffix, substring, subsequence of string.
Q.27	Explain with suitable example CLR(canonical LR) parsing technique.
Q.28	Write grammar for comma separated list of identifiers.
Q.29	Explain code optimization technique.
Q.30	Construct the collection of LR(0) item sets for the following grammar. $E' \rightarrow E$ $E \rightarrow E+T T$ $T \rightarrow T*F F$ $F \rightarrow (E) id$
Q.31	Write an algorithm for left factoring a grammar.
Q.32	Describe the language denoted by following regular expression (i) $0(0 1)^*0$ (ii) $(0 1)^*0(0 1)(0 1)$
Q.33	Explain the difference between context free and context sensitive grammars with an example.
Q.34	Identify tokens, lexeme and pattern from the following statement. const pi=3.1416
Q.35	Explain heap allocation.
Q.36	Explain (i) handles (ii) handle pruning
Q.37	Consider the grammar $S \rightarrow (L) a$ $L \rightarrow L,S S$ Find parse tree for the following sentences (i) (a,a) (ii) (a,(a,a))
Q.38	Explain preprocessors.
Q.39	How Lookahead LR(LALR) parsing technique works?-give example.
Q.40	Draw transition diagram for signed numbers.