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USN

School of Computer Science and Engineering

B.Tech (Hons.)

CP-1 Question Paper

Academic Year 2024-2025

Course: Compiler Design	**Course Code: CS3704**	**Semester: VI**
Time: 2.00PM -3.00PM	**Max Marks: 15**	**Date :13/02/2025**

Sl. No.	Questions	Marks	L1-L6	CO
1.	A regular expression for accepting strings with exactly one 1 more than 0's is A. 0*1 B. (0/1)*1(0/1)* C. (0/1)*1(0/1)*|1(0|1)* **D. Cannot be framed**	**1**	**L3**	**CO1**
2.	Which of the following are Lexemes? A. Identifiers B. Constants C. Keywords **D. All of the mentioned**	**1**	**L2**	**CO1**
3.	In a lex specification file "?" stands for ------zero or 1 occurence--	**1**	**L2**	**CO1**
4.	The number of tokens in the following C statement is printf("i = %d, &i = %x", i, &i); A.3 B.11 **C.10** D.21	**1**	**L3**	**CO1**
5.	Output file of Lex is the input file is Myfile A. Myfile.asm C. **Myfile.yy.c** B. Myfile.lex D.Myfile.obj	**1**	**L2**	**CO1**
6.	Identify which one of the following grammars is free from left recursion? Option B A. $S \rightarrow AB$, $A \rightarrow Aa \mid b$, $B \rightarrow c$ B. $S \rightarrow Ab \mid Bb \mid c$, $A \rightarrow Bd \mid \epsilon$, $B \rightarrow e$ C. $S \rightarrow Aa \mid B$, $A \rightarrow Bb \mid Sc \mid \epsilon$, $B \rightarrow d$ D. $S \rightarrow Aa \mid Bb \mid c$, $A \rightarrow Bd \mid \epsilon$, $B \rightarrow Ae \mid \epsilon$	**1**	**L3**	**CO2**

L1- Remember, L2- Understand, L3 – Apply, L4- Analyse, L5 – Evaluate, L6 – Create

7.	Type checking is normally done during -Semantic Analysis---------- phase of compiler.	**1**	**L2**	**CO1**
8.	Eliminate left recursion in the productions given below: S → Ba | b B → Bc | Sd | ε **S□Ba|b** B□Bc|Bad|bd| ε **B□bdB'|B'** **B'□cB' |adB'| ε**	**2**	**L3**	**CO2**
9.	Which one of the following statements is FALSE? A. Context-free grammar can be used to specify both lexical and syntax rules. B**. Type checking is done before parsing.** C. High-level language programs can be translated to different Intermediate Representations. D. Arguments to a function can be passed using the program stack.	**1**	**L2**	**CO2**
10.	Identify tokens generated by the scanner for the following statement and give the total count? x = x ∗ (a + b) – 5; token no character 1 x 2 = 3 x 4 * 5 (6 a 7 + 8 b 9) 10 - 11 5 12 ;	**1**	**L3**	**CO1**

11.	Match all items in Group 1 with those given in Group 2. Group 1 Group 2 A. Regular expression 1. Syntax analysis B. Pushdown automata 2. Code generation C. Dataflow analysis 3. Lexical analysis D. Register allocation 4. Code optimization **A—3 B—1 C—4 D—2**	**2**	**L3**	**CO1**
12.	A CFG G is given with the following productions where S is the start symbol, A is a non-terminal and a and b are terminals. S□aS | A A□aAb | bAa| ε For the string"aabbaab" examine how many steps required to derive the string and how many parse trees are there? $S \underset{1}{\rightarrow} aS$ $\underset{2}{\rightarrow} aA$ $\underset{3}{\rightarrow} aaAb$ $\underset{4}{\rightarrow} aabAab$ $\underset{5}{\rightarrow} aabbAaab$ $\underset{6}{\rightarrow} aabbaab$ Thus 6 steps are needed and only one way to derive the string so only one parse tree.	**2**	**L3**	**CO2**

Course Outcomes

1.Develop skills to devise, select, and apply appropriate tools and techniques for effective compiler design.

2.Apply context-free grammars (CFG) to develop language specifications.

Marks Distribution									
L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4
	5	10				9	6		