



Chapter 1 – Introduction to FLAT

Sample – Multiple Choice Question

1. Which one the following is a invalid string over $\Sigma = \{0,1,2\}$
 - a) 012,000,001
 - b) 210,102,100
 - c) 200,203,222
 - d) None of these

2. Which one of the following describe correctly to regular language and Context sensitive language respectively
 - a) Type 0 language and Type 1 language
 - b) Type 3 language and Type 1 language
 - c) Type 3 language and Type 2 language
 - d) Type 1 language and Type 2 language

3. The expressive power of Finite Automata is
 - a) 1
 - b) 2
 - c) No expressive power
 - d) Infinite

4. What is true about $L = \{a^n b^n \mid n \geq 0\}$
 - a) L is an natural language
 - b) L is a formal language
 - c) Cannot say
 - d) none of the above

5. Every finite language is



- a) Regular Language
 - b) Context free language
 - c) Recursive enumerable language
 - d) All of the above
6. The length of a empty string is always
- a) 0
 - b) 1
 - c) 2
 - d) cannot say depends on alphabet set
7. Consider a string $w = \text{FLAT}$ over $\Sigma = \{F, L, A, T\}$ then the number of prefix and total no of substring for w respectively are
- a) 5, 11
 - b) 4, 11
 - c) 11, 4
 - d) 11, 5
8. Consider a set of alphabet $\Sigma = \{T, O, C\}$ then the number of three length string that can be generated over Σ are
- a) 8
 - b) 9
 - c) 1
 - d) 3
9. Which one of the following represents correct relation between kleen closure(Σ^*) and positive closure(Σ^+)
- a) $\Sigma^* \subseteq \Sigma^+$



- b) $\Sigma^+ \subseteq \Sigma^*$
- c) No relation
- d) None of the mentioned

10. The number of tuples in grammar G are

- a) 3
- b) 7
- c) 5
- d) 4

12) if $r = (a+b)^*$ then which of the following is true

- a) $(a^* + b^*)^*$
- b) $(a^* \cdot b^*)^*$
- c) $(a^* + b)^*$
- d) All of the above

13) Which of the following is true?

- a) $(01)^*0 = 0(10)^*$
- b) $(0+1)^*0(0+1)^*1(0+1) = (0+1)^*01(0+1)^*$
- c) $(0+1)^*01(0+1)^*+1*0^* = (0+1)^*$
- d) All of the mentioned

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1. Define Chomsky classification for Formal languages.
2. What is language? Define different types of languages.
3. What is left linear and right linear grammar?
4. Explain pumping lemma for regular languages.
- 5) Draw DFA to accept strings of a's and b's starting with the string ab.
- 6) DFAs to accept strings of a's and b's having exactly one a.



5. Use Pumping Lemma to show that following language is not regular. $L = \{ ww^R / w \in \{0,1\}^* \}$
6. Prove that the language $L = \{0^n : n \text{ is a prime number}\}$ is not regular.
7. Minimize the following DFAs

