Generated Question Set 2024

SUBJECT: FORMAL LANGUAGES AND AUTOMATA THEORY

SUBJECT CODE: CST301

MARKS: 50

Question 1: 2 Construct a regular expression to denote a language L over Σ = {0,1} accepting all strings of 0's and 1's that do not contain substring 011

Marks: 3

Question 2: 5 a) Explain the different phases in the design of a compiler.   b) Find the FIRST and FOLLOW of the non -terminals in the grammar S->aABe A->Abc|b B->d

Marks: 9

Question 3: 6 Write a Context -Free Grammar for the language L = {wcwr | w $\in$ {a,b}* }, wr represents the reverse of w.

Marks: 3

Question 4: 13 a) Derive LALR (1) parsing algorithm for following grammar   S→AS/b A→SA/a

b) Design a type checker for simple arithmetic operations.

Marks: 9

Question 5: 3 Consider the context free grammar S ->aSbS | bSaS | ϵ Check whether the grammar is ambiguous or not

Marks: 3

Question 6: 8 Explain the main actions in a shift reduce parser

Marks: 3

Question 7: 13 a) State and explain any three closure properties of Regular Language s.   b) Find the equivalent Regular Expression using Kleen e's construction for the language represented by the following DFA .   b   b

Marks: 14

Question 8: 19 a) Explain Boolean Retrieval with an example.   b) Compare unigram and bigram language model.

Marks: 5