Ass-2

1] What is ambiguity?

2] Differentiate between DFA and NFA

3] Define simplification of CFG with types.

4] Prove the theorem: A language is conte
free if some pushdown automata recog
it.

5] Define decidable language.

6] Differentiate finite automata and Turing
machine.

7] Define the classes P, NP, NP-complete.
Why NP-complete class is significant
regarding the question P = NP?

8] Show relationship in diagram:
Regular language, context free lang., decidab
lang.

9] Can you run a nondeterministic algorithm on a deterministic machine instead of a nondeterministic one? If yes, explain. how you can do it and how running time will be affected. If no, explain why not be possible

10] How do you use the pumping lemma to determine if a languge is content-free?

11] Describe a regular langug language using CFG with example.

12] ε-rule and Unit rules

13] Describe components of CFG. Is any of the components have a similarity with any of the components of RL or FA.

14] Define and differentiate

(i) Derivation and Parse Tree

(ii) Left most and Right most derivation.

15] How ε-rules are removed when converting a grammar to CNF.

16] Why do you think PDA is more powerful than FA.

17] What is Church Turing thesis.

18] Show, E_{DFA} and EQ_{DFA} are decidable la

19] Show set of rational numbers is countable.

20] Show, that every Non-deterministic Turing Machine has an equivalent deterministic Turing machine.

21] Prove, Halting problem for Turing machine is undecidable.