Galgotias College of Engineering & Technology
Department Of Information Technology
Innovation in Teaching Learning

Faculty Name: Mr. Ranjit Kumar
Subject Name: Theory of Automata and Formal Languages (RCS 403)

## Approach: Well framed approach to a set of question of a topic

Topic: Finite Automata

1.1) Draw a deterministic and non-deterministic finite automata which accept a string containing "the" anywhere in a string of {a-z}, e.g., "there" but not "those".
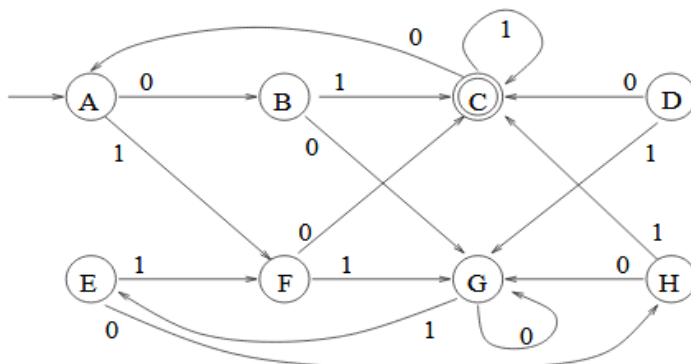
Q.2) Construction of a minimal DFA accepting set of strings over {a, b} in which $a^n b^m c^l$, where n, m and l is greater than or equal to 0.

Q.3) Construction of a minimal DFA accepting set of strings over {a, b} in which $a^n b^m c^l$, where n, m and l is greater than or equal to 1.

Q.4) Minimize the given Finite automata:
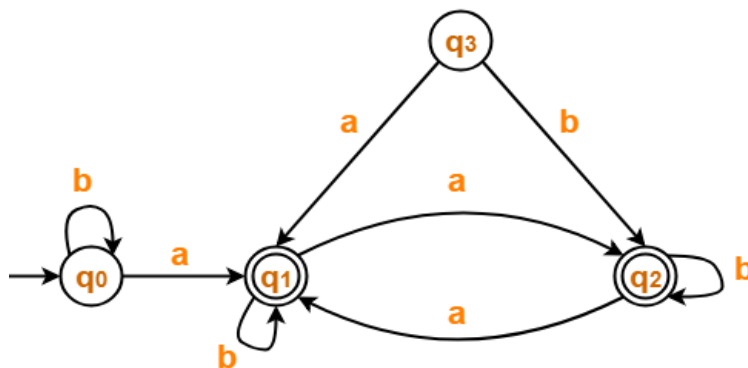
Q.5) Minimize the given Automata using Myhill nerode method:

Topic: Pushdown Automata

Q.6) Differentiate between moore and mealy machine and write algorithm for mealy to moore and moore to mealy conversion.

Q.7) Prove that $L = \{a^i b^i \mid i \geq 0\}$ is not regular.

Q.8) Convert CFG to CNF, Consider the given grammar G1:

$S \rightarrow ASB$

$A \rightarrow aAS|a|\varepsilon$

$B \rightarrow SbS|A|bb$

Q.9) Construct Pushdown automata for $L = \{0^m 1^{(n+m)} 2^n \mid m,n \geq 0\}$

Topic: Turing Machine

Q.10) Construct Turing machine for $L = \{a^n b^m a^{(n+m)} \mid n,m \geq 1\}$

Q.11) Turing machine for 1's and 2's complement.