**BRAC UNIVERSITY**

**Department of Computer Science and Engineering**

**CSE420: Compiler Design**

**Quiz 01, Summer 2016**

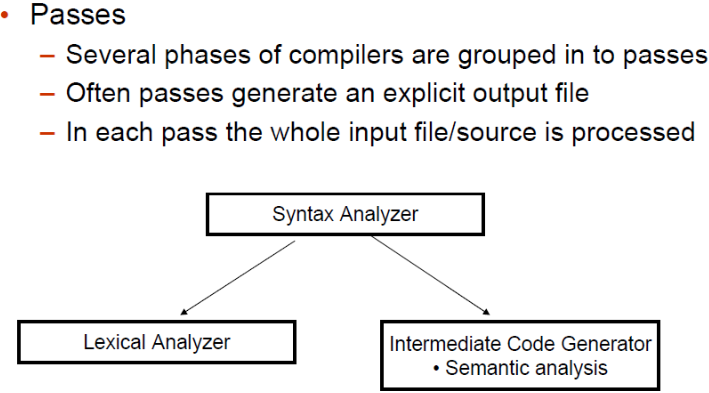
**Duration: 1.00 hours, Total Marks: 30**

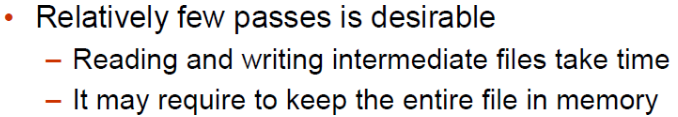
**Student Name:**

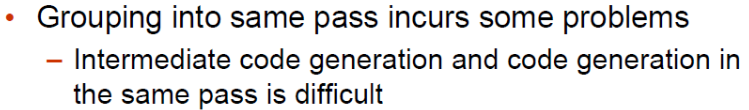
**Student ID:**

**Section:**

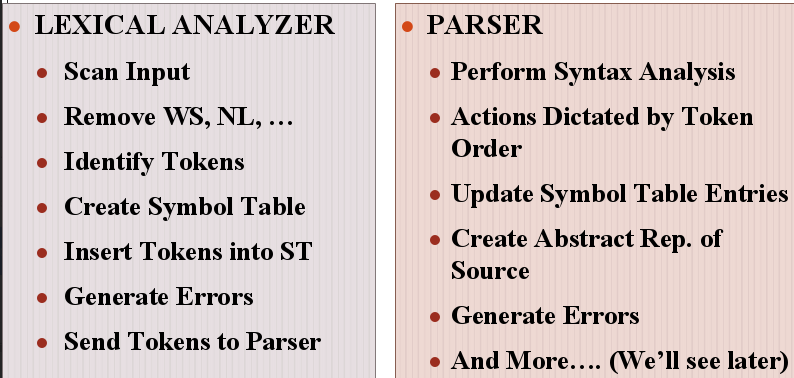
1. What do you know about the term “multi-pass compiler”? [2]



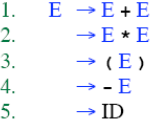
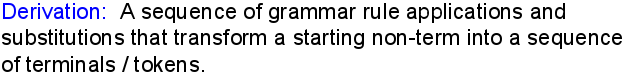




1. State the major responsibilities of Lexical analyzer and parser. [2]



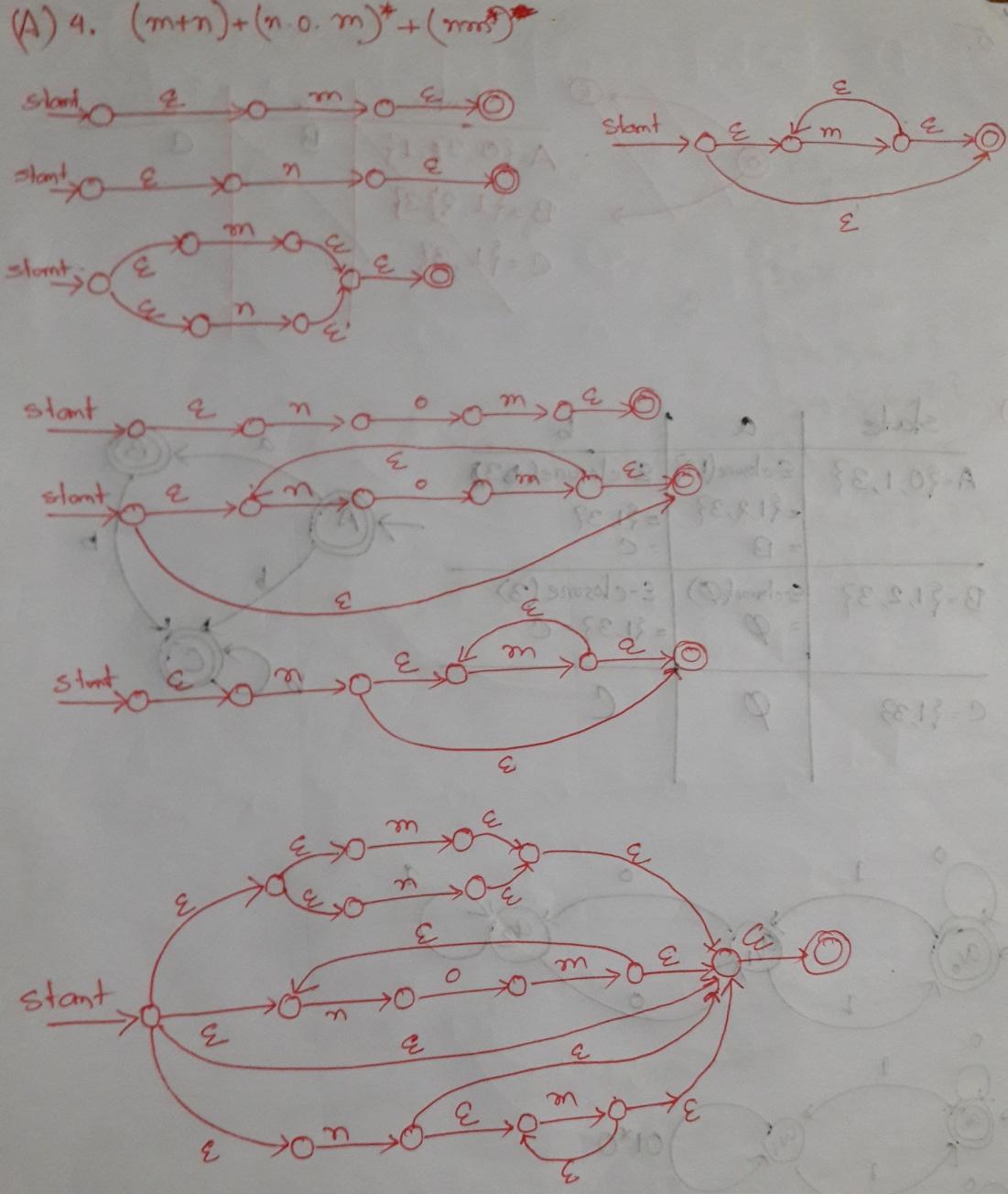
1. Define Derivation and it’s types. [2]



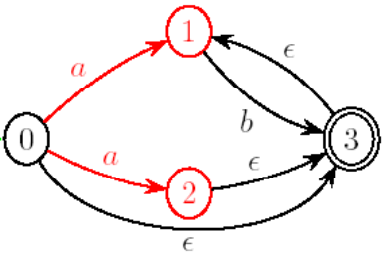
There are two types of derivation:

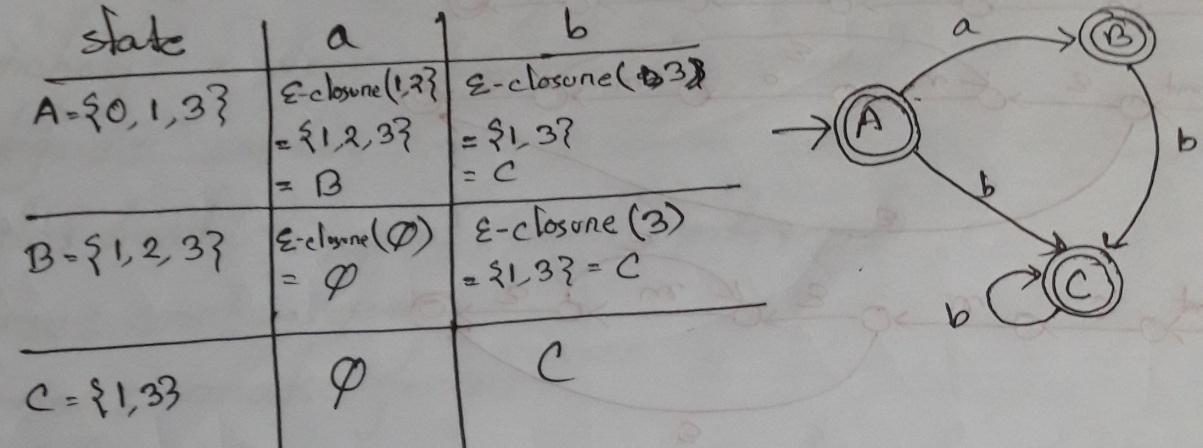
|  |  |
| --- | --- |
| **Leftmost Derivation** | **Rightmost Derivation** |
| It always expands the left-most non-terminal | It always expands the right-most non-terminal |

4. Convert RE (m+n)+(n.o.m)\*+(nm\*)to NFA using Thompson’s Construction. [6]

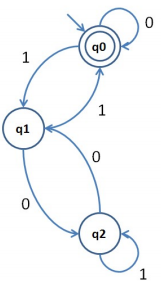


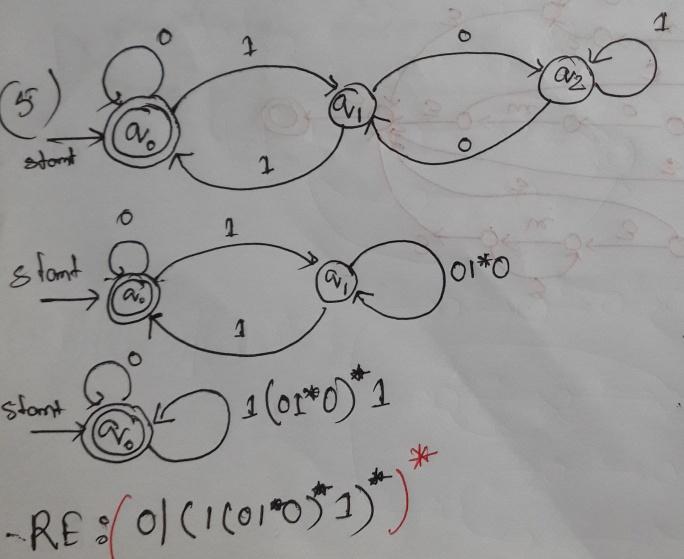
1. Convert following NFA to DFA using Subset Construction method. [3]



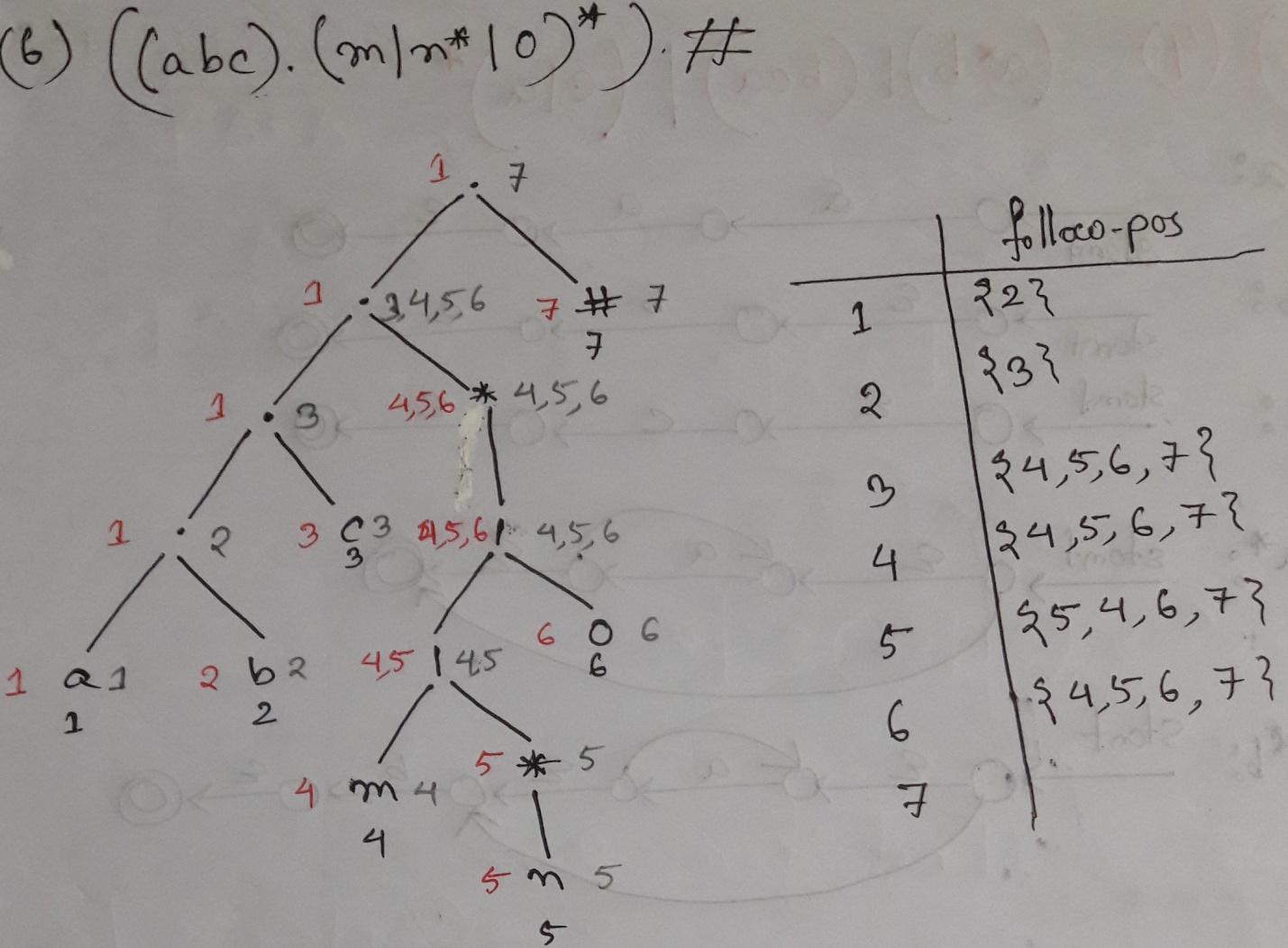


5. Convert following DFA to RE : [4]





6. Draw the syntax tree of RE **(abc)(m|n\*|o)\*** and determine the first-pos, last-pos, follow-pos of each node. [2+1.5+1.5+3]



7. Remove ambiguities from the following grammar: [3]

S → a S e | S T S

T → R S e | RQ

R → r S r | ε

Q → S T | ε

