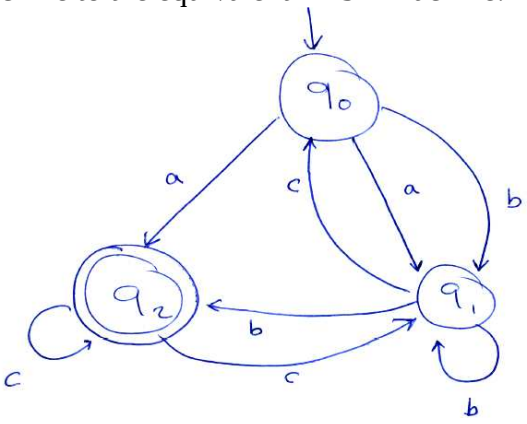
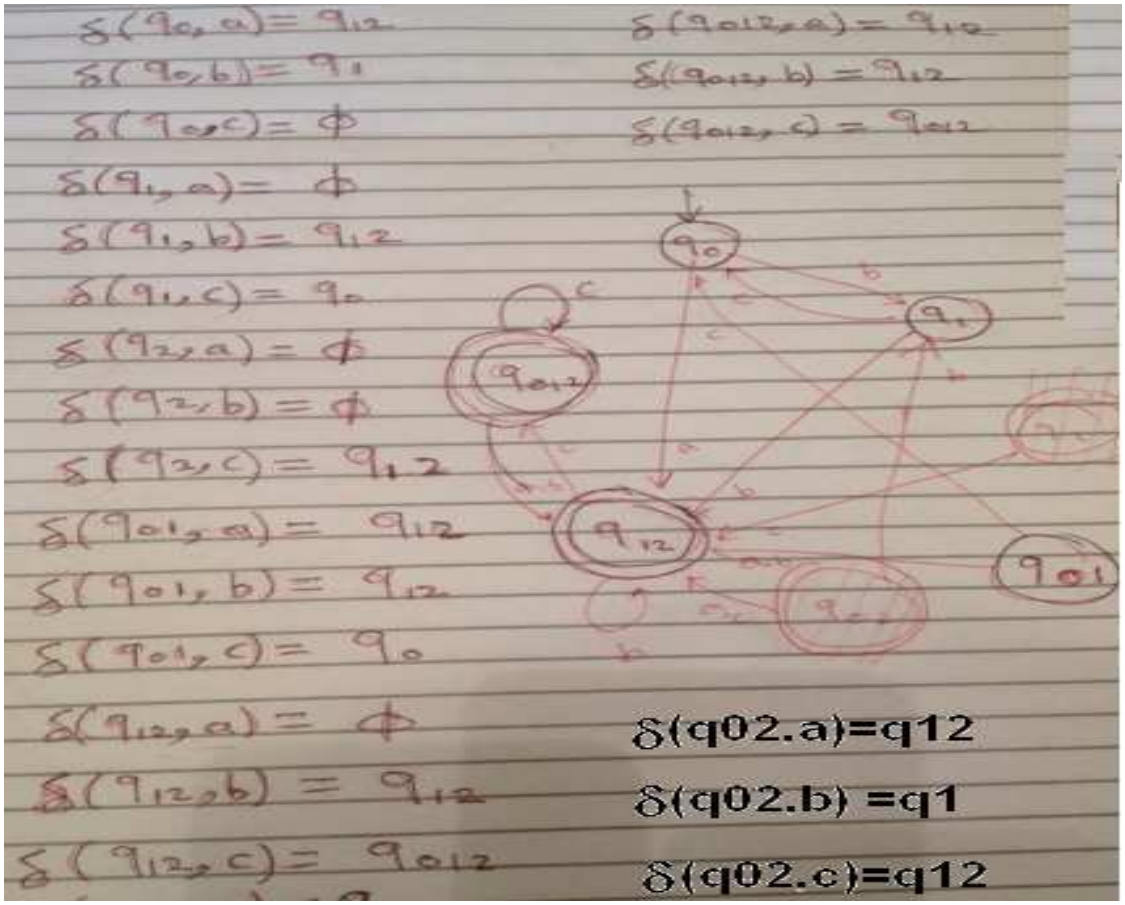
Philadelphia University | **Faculty of Information Technology**
Lecturer : Dr. Nameer N. EL-Emam | **Department of CS**
Internal Examiner : Dr. Raad Alwan | **Marking Scheme**
Computation Theory (750223) **Second Exam** **Semester one of the academic year:2015-2016**
Date: 31/12/2015 | **Time 50 minutes**

Objective: This part aims to check student abilities to construct DFSA from NFSA as language acceptor machine.

Q1/(6 marks)
Convert the following NFSA machine to the equivalent DFSA machine:





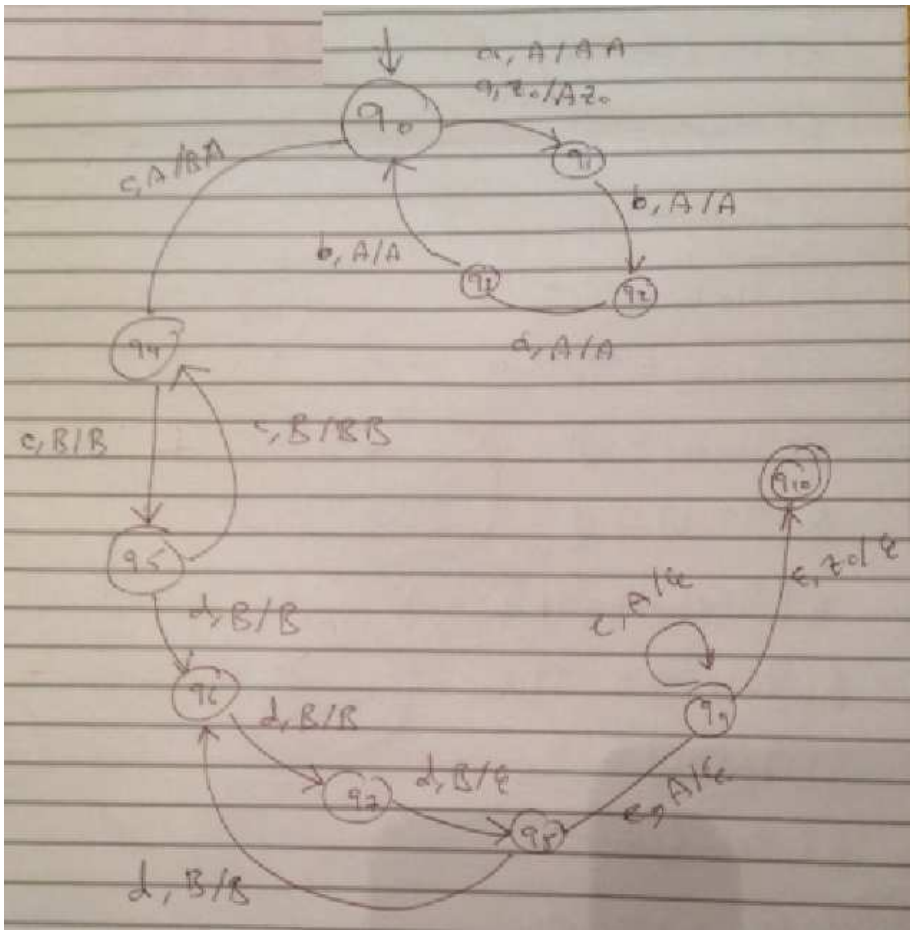
Q2/(7 marks)

Construct PDA as language acceptor that recognizes each of the following languages:

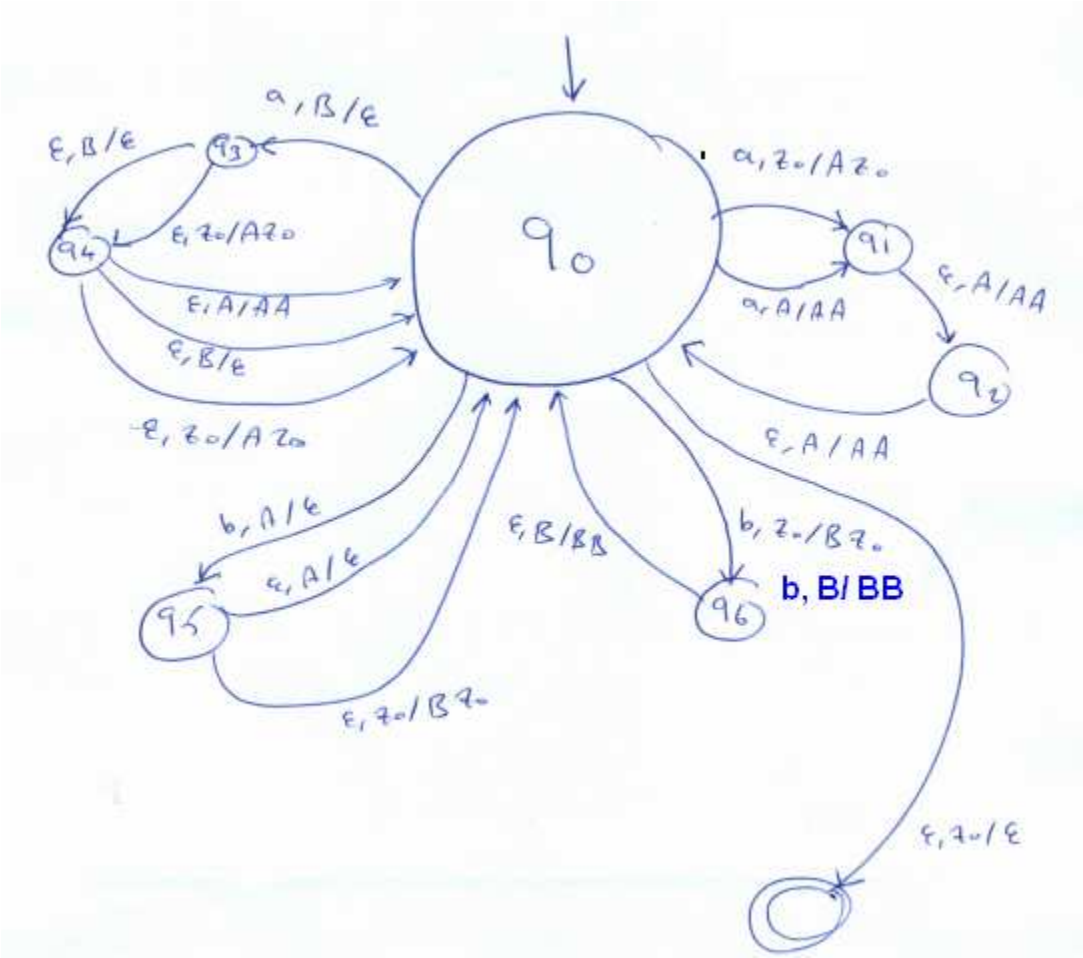
$1-L=\{(ab)^{2m}\ c^{2n}\ d^{3n}\ e^{m} \mid n,m\geq 1\ \}$

$2-L=\{(a+b)^{*} \mid \text{where the ratio between number of as' and number of bs' is } 2:3\}$

1-



2-



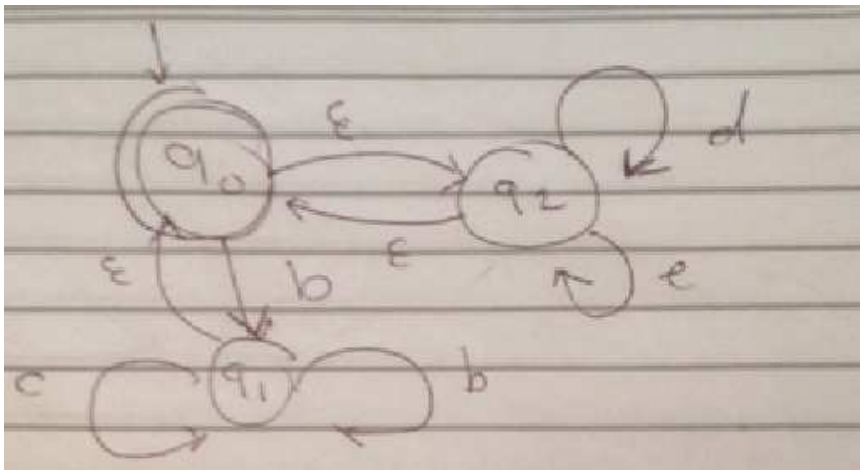
Q3/(7 marks)

Construct NFSA that accept the following regular expressions:

1 – $(b(b+c)^* + (d+e)^*)^*$

2 – $(bc)^+ + (a+b)^*$

1-



2-