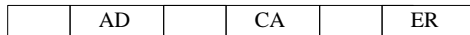


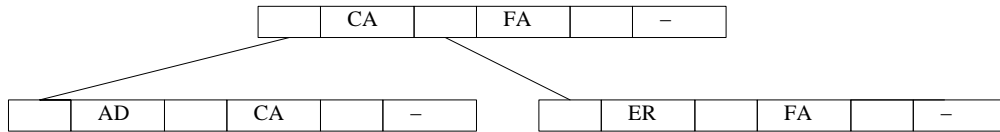
CSI2131, Winter 2002 Lab 11 Solution

Question 1 - A

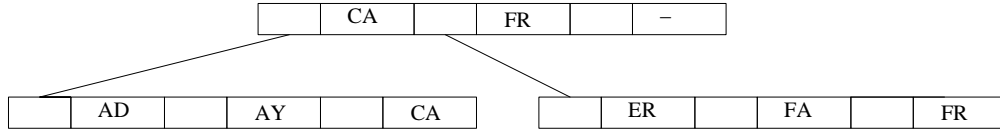
Insert AD, CA, ER:



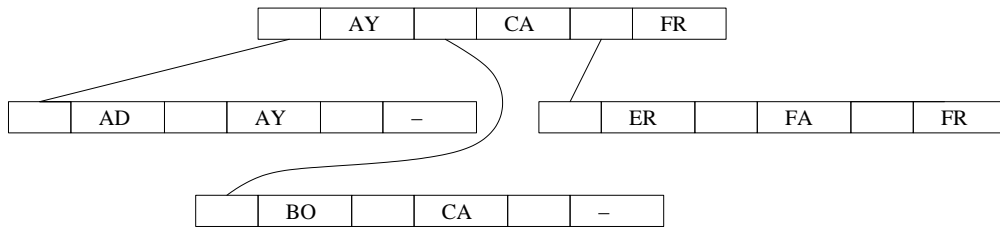
Insert FA:



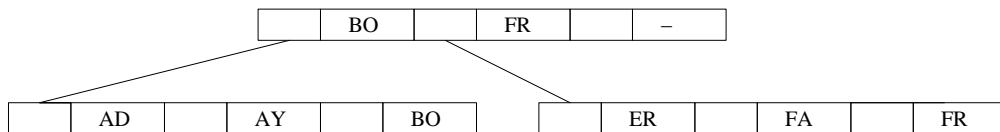
Insert FR, AY:



Insert BO:



Delete CA (use merging):

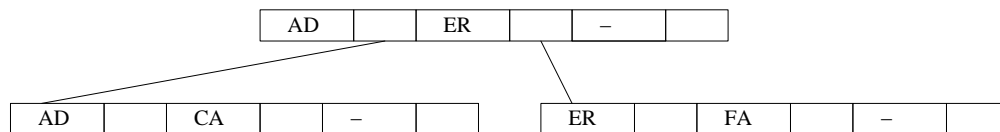


Question 1 - B

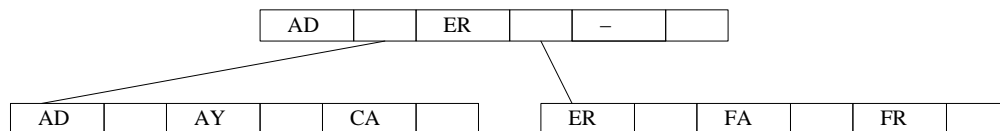
Insert AD, CA, ER:



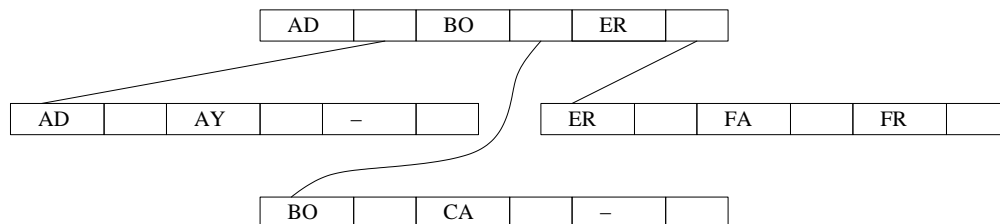
Insert FA:



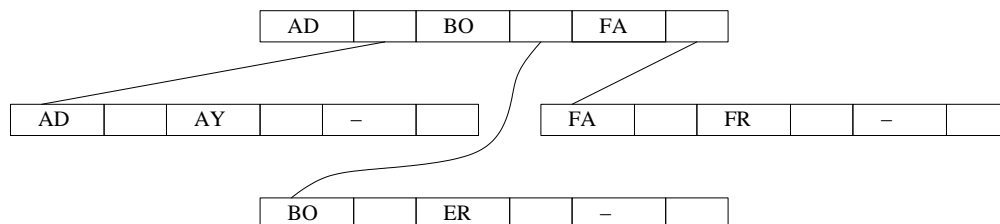
Insert FR, AY:



Insert BO:



Delete CA (use redistribution):



Question 2

D

Question 3

1) Merging With Predecessor

	E		L		-		-
--	---	--	---	--	---	--	---

	A		C		D		E
--	---	--	---	--	---	--	---

	I		J		L		-
--	---	--	---	--	---	--	---

2) Merging With Successor

	D		L		-		-
--	---	--	---	--	---	--	---

	A		C		D		-
--	---	--	---	--	---	--	---

	E		I		J		L
--	---	--	---	--	---	--	---

3) Redistribution With Predecessor

	C		E		L		-
--	---	--	---	--	---	--	---

	A		C		-		-
--	---	--	---	--	---	--	---

	D		E		-		-
--	---	--	---	--	---	--	---

	I		J		L		-
--	---	--	---	--	---	--	---

4) Redistribution With Successor

	D		I		L		-
--	---	--	---	--	---	--	---

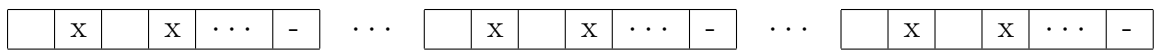
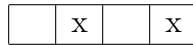
	A		C		D		-
--	---	--	---	--	---	--	---

	E		I		-		-
--	---	--	---	--	---	--	---

	J		L		-		-
--	---	--	---	--	---	--	---

Question 4

Minimum number of keys per level:



- level 1: 2
- level 2: $2 \times 10 = 20$ (2 nodes and 10 keys per node)
- level 3: $20 \cdot 10 = 200$ (20 nodes and 10 keys per node)