

# Midterm of FCS

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**5**

**a)**

*baa*

**b)**

*bbbb*

**c)**

*baba*

**d)**

*bab*

**e)**

$b^*(ab)^*(a^* \cup b^*)$

**f)**

1)The strings have 11,but no 00:  $(1^+0 \cup 0)11^+[0(1^+0)^*1^*]^*$

2)The strings have 00,but no 11:  $(0^+1 \cup 1)00^+[1(0^+1)^*0^*]^*$

3)The strings haven't 00 or 11:  $(01)^*(0 \cup \epsilon) \cup (10)^*(1 \cup \epsilon)$

so,the required expression is:

$\{(1^+0 \cup 0)11^+[0(1^+0)^*1^*]^*\} \cup \{(0^+1 \cup 1)00^+[1(0^+1)^*0^*]^*\} \cup \{(01)^*(0 \cup \epsilon) \cup (10)^*(1 \cup \epsilon)\}$