CSPC41

Problem Sheets - 1

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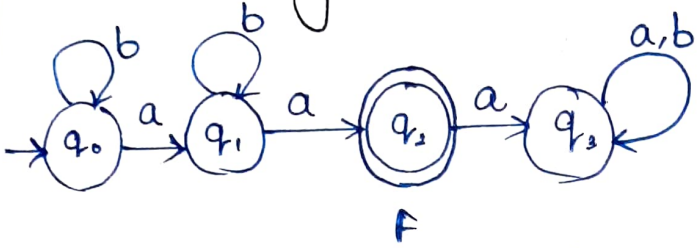
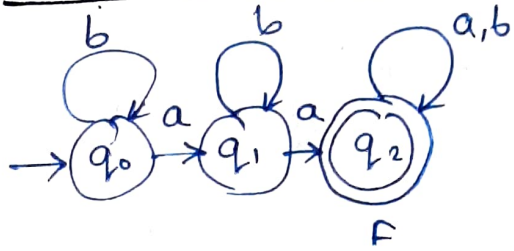
Question 01: Σ (a,b)

(a) exactly two a's.



L = { aa, aba, -- }

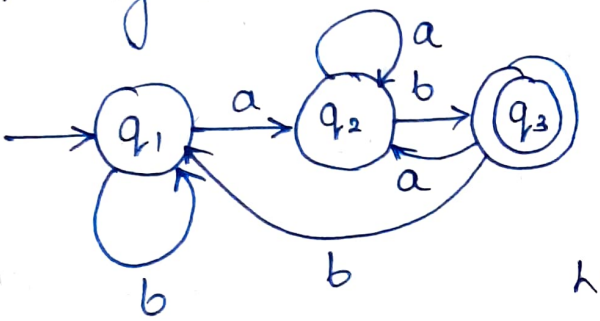
(b) at least two a's



L = { aa, aaa, aba -- }

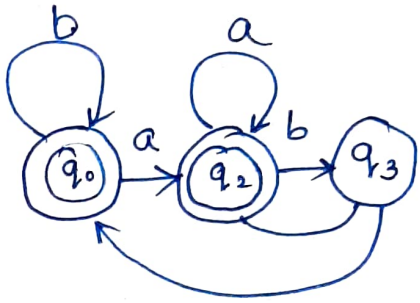
(c) do not end with ab

(i) string end with 'ab'



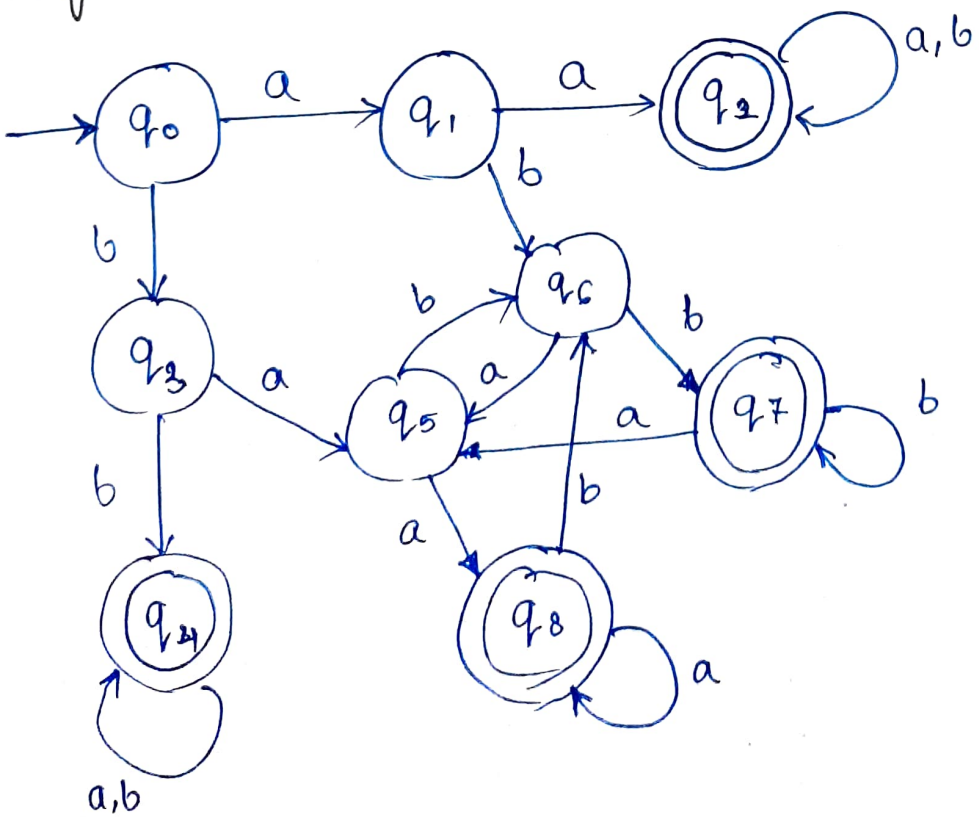
so,

so, taking ⇒ complement



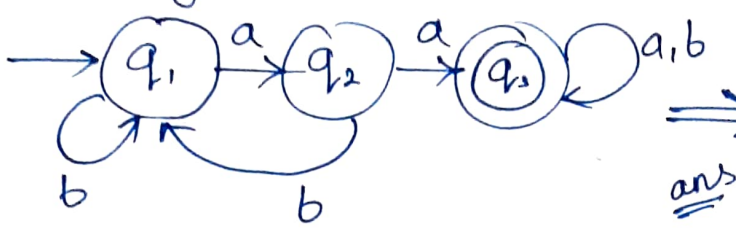
L = { ba, bba, aaba -- }

(d) begin or end with aa or bb



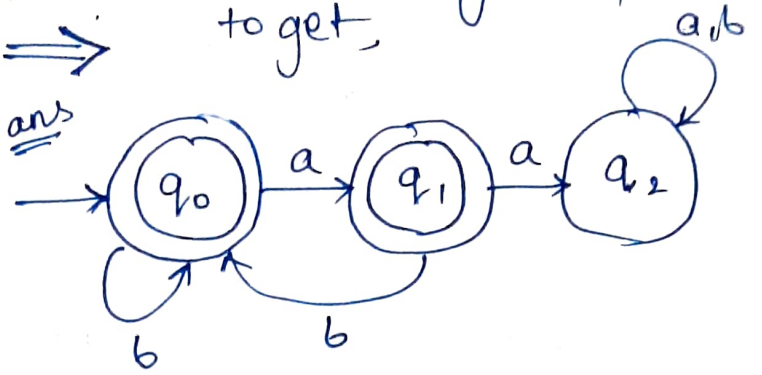
(e) not containing the substring 'aa'.

(i, Substring contains "aa"



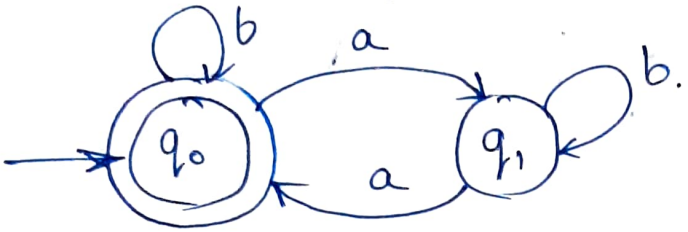
now taking complement to get,

ans

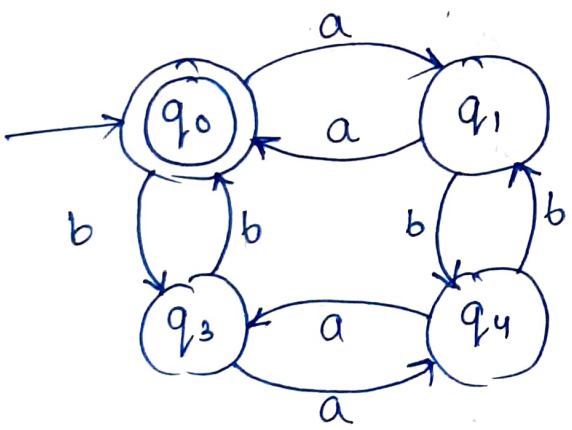


(f) number of a's even

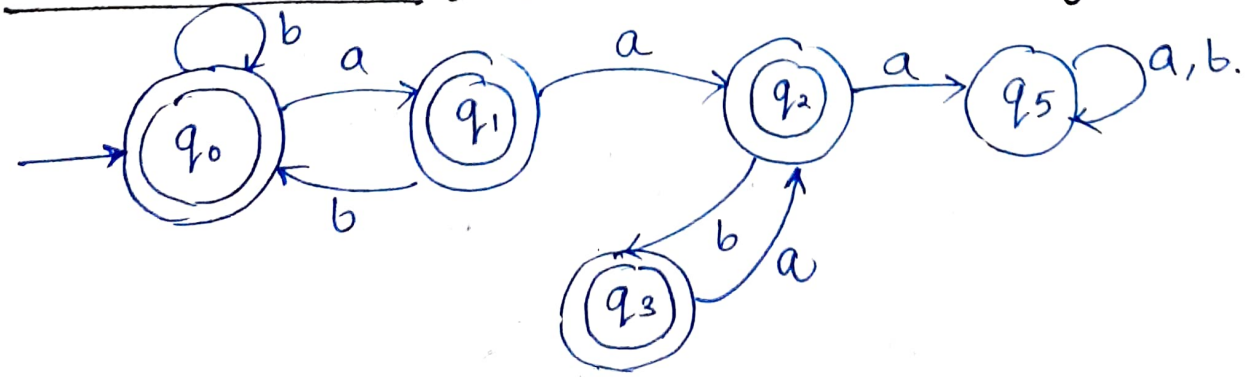
$L = \{ \in, aa, baa, aab \cdots \}$



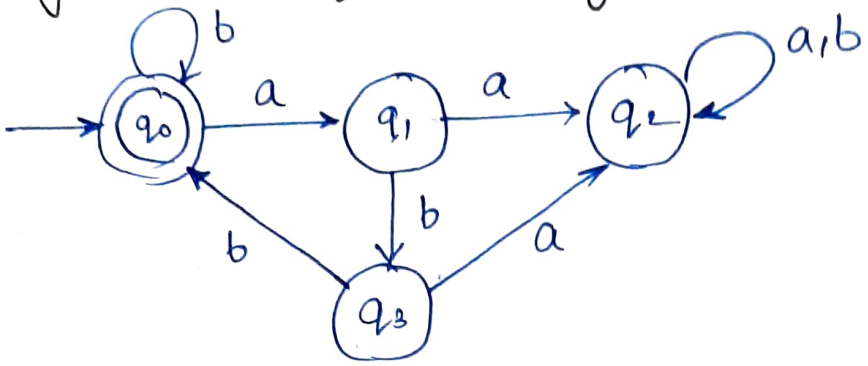
(g) both number of a's and number of b's are even.



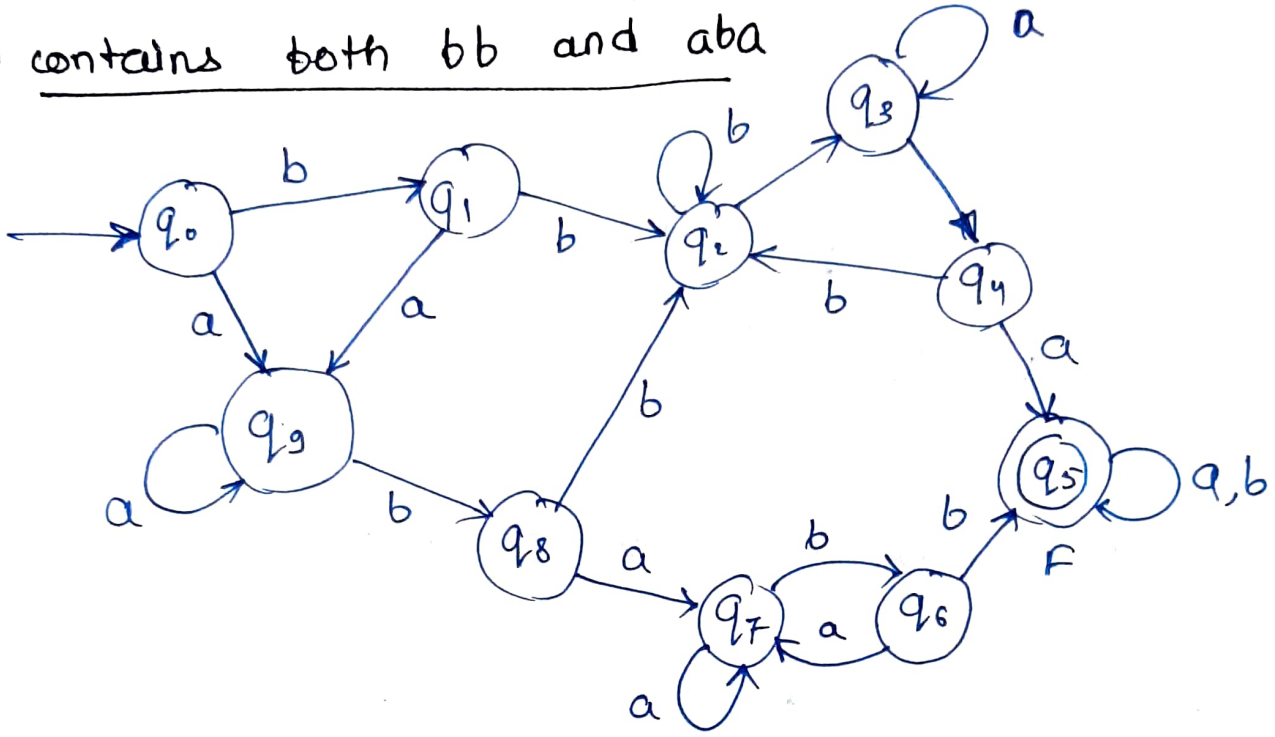
(h) no more than one accurance of string 'aa'.



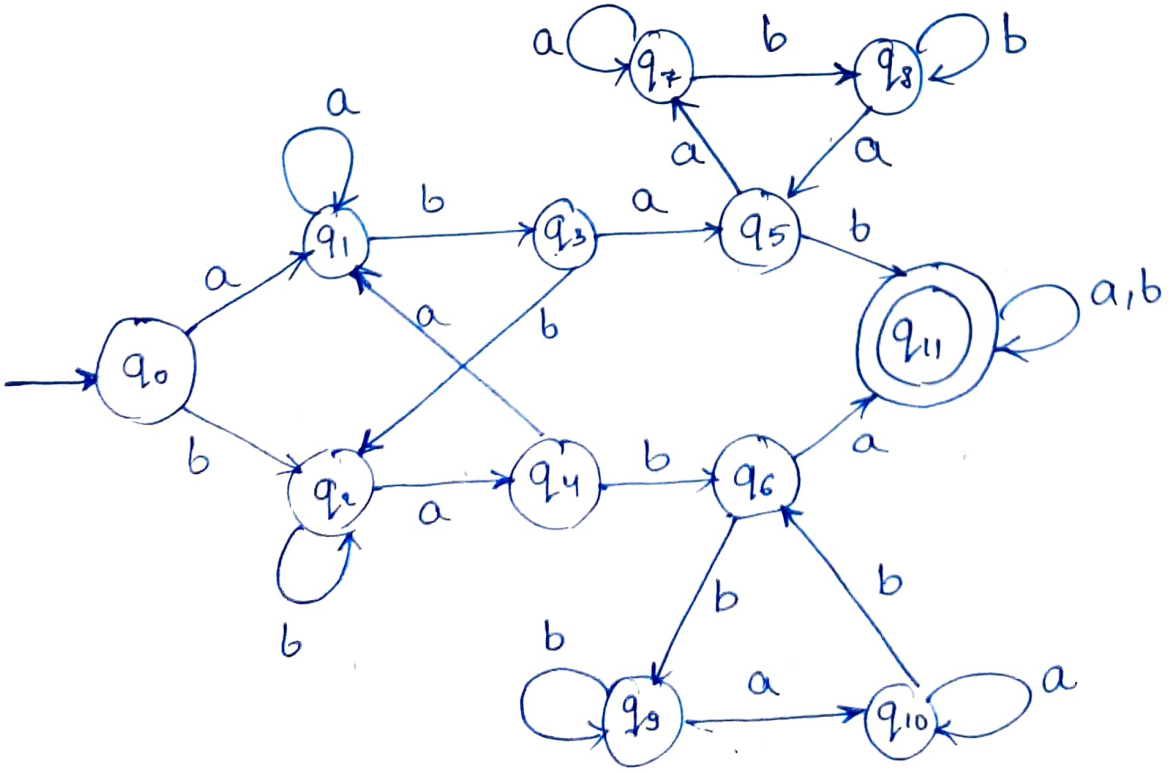
(i) every a↑ is followed by bb. (if present)



(j) contains both bb and aba



(k) contains both aba and bab



Question (2)

(a) The language of all strings that contains 'aaba'

(b) The language of all strings that ends with 'aaba'

(c) The language of all strings that start with 'aaba'

(d) The language of all strings that start with 'b' nor end with 'a'

shauld not ↑

(e) The language of all strigs : $(ab+ba)^*$,

ie, set of strings of ab's and ba's of even length including null strings.

So, $L = \{ \varepsilon, ab, ba, abab, abba, \cdots \}$