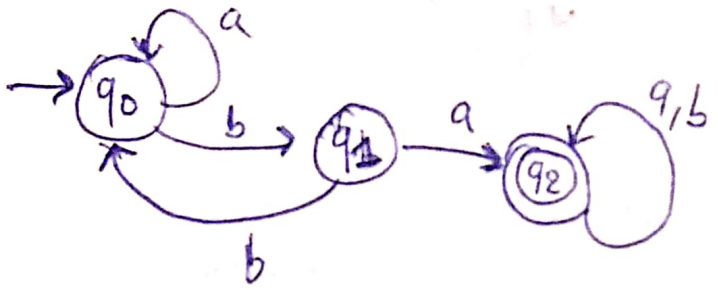
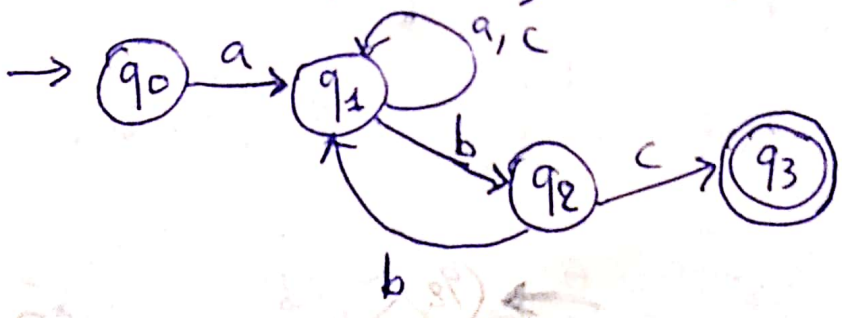
Exercice 3

a) $L = \{m \mid m \in \{a,b\}^*$ et m contient ba comme sous-mot$\}$



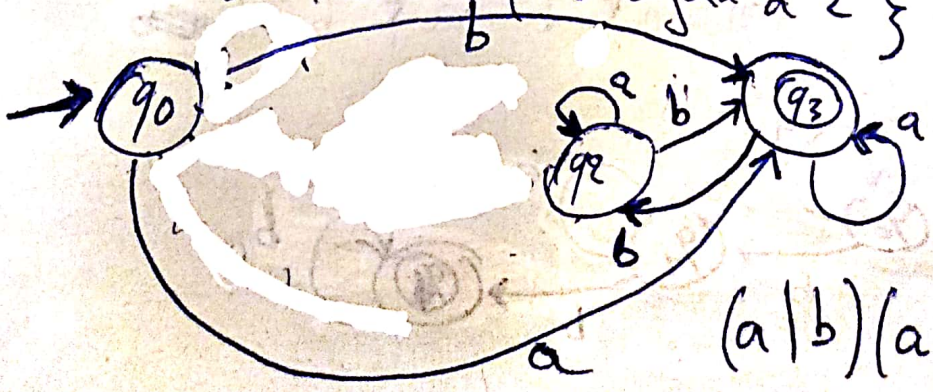
$(a|b)^* (ba)^+ (a|b)^*$

b) $L = \{m \mid m \in \{a,b,c\}^*$ m commence par 'a' et se termine par 'bc'$\}$



$a(a|b|c)^* (bc)$

c) $L = \{m \mid m \in \{a,b,c\}^*$ et m ne contient pas un nombre de 'b' égal à 2$\}$

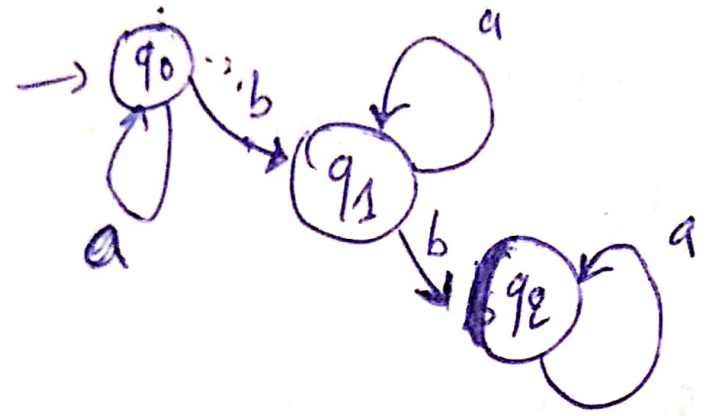


$(a|b)(a^*)(b)(a^*)b$

exactement 2 fois 'b'

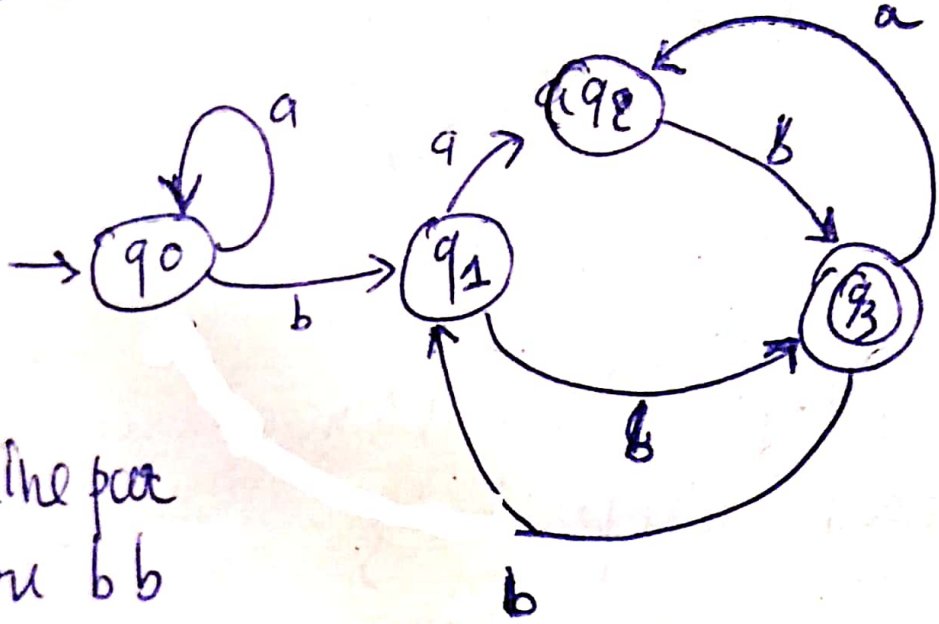
(2)

(d)



$$r = a^* b\, a^* b\, a^*$$

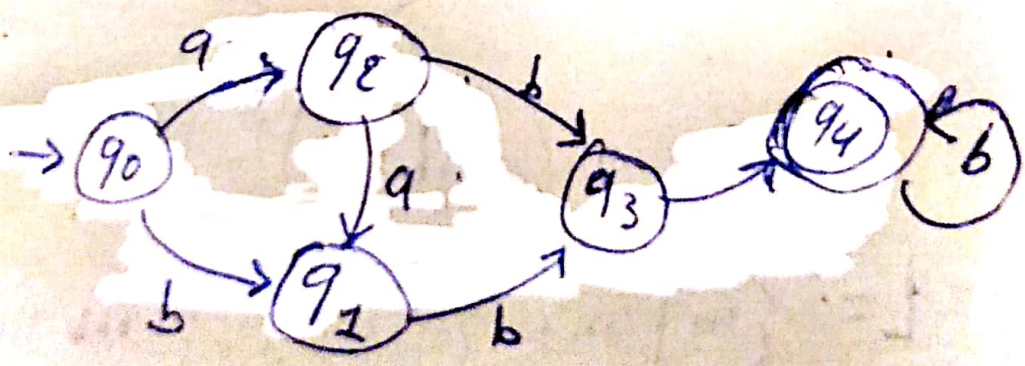
(e)



se termine par bab ou bb

$$r = (a \mid b)^* (bab)? \; b?$$

(f)



au plus 2 'a' et au moins 2 'b'

$$r = a? \; b^+ \; a? \; b^+$$

Question 2 :

$\Sigma = \{a, b, c\}$, a toujours suivi de b
b toujours suivi de a
Sauf dernier symbole

$$r = (((ab)|(ba))^* | c)^+$$

Question 3 :

$\Sigma = \{a, b\}$
jamais 2 'a' consécutifs

$$(a?|b^*|ab)^+$$

Question 4 :

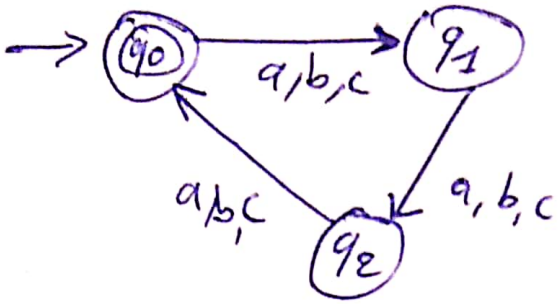
Accepte t-elle le mot vide ?

- $(a + ba^*) + b(a + (b + aba)^*)^*$ oui
- $(1 + b)(aa^* + bb^*a)^*$ non
- $(1 + a)(1 + b)(1 + c)(1 + d)(e + f)$ non
- $(a + (b + (c + d)^*)^*)^*$ oui

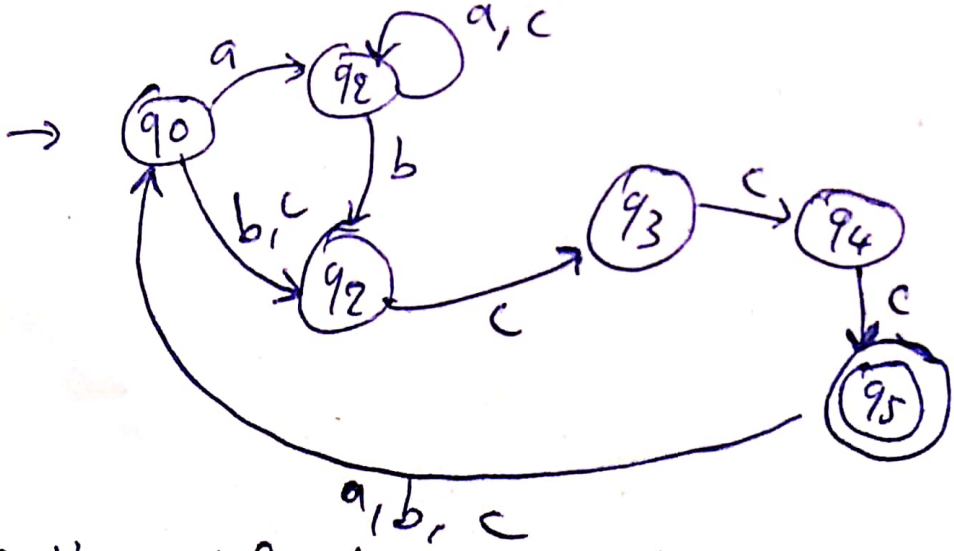
Exercice 4 :

$A = \{a, b, c\}$, trouvez un AFD reconnaissant les mots de :

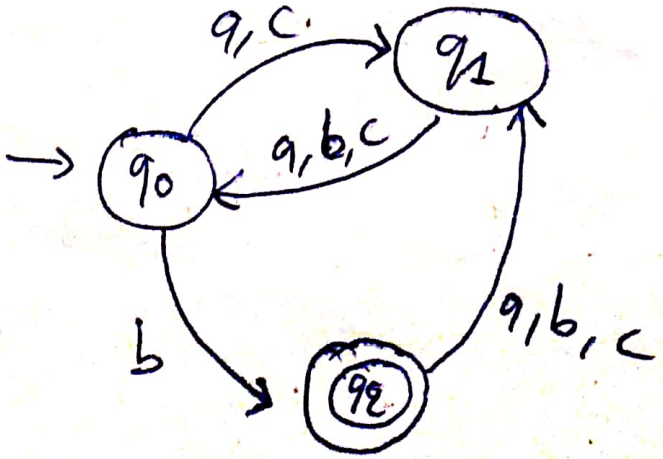
(a) longueur multiple de 3



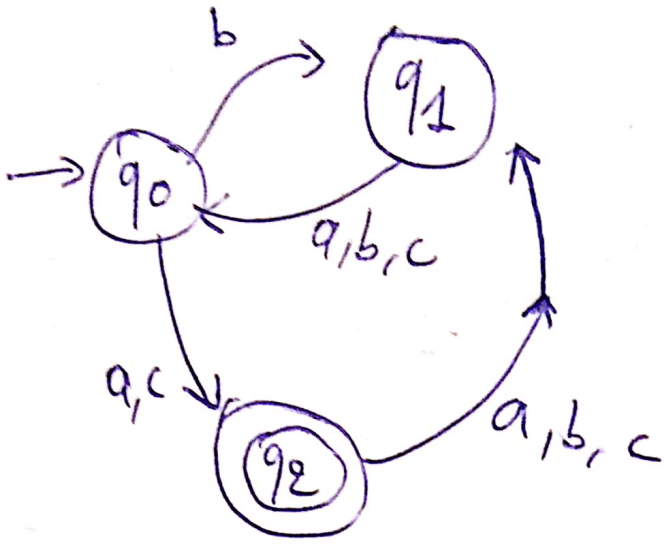
(b) Chaque occurence du motif (ab) s'il y en a est suivi de (ccc)



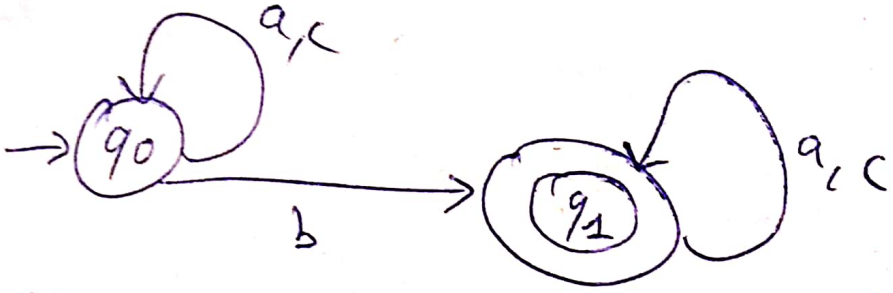
(c) l'ensemble des mots se terminant par b



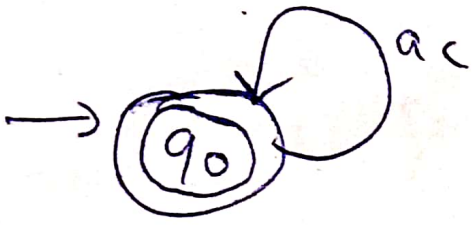
d) Ne se terminant pas par b



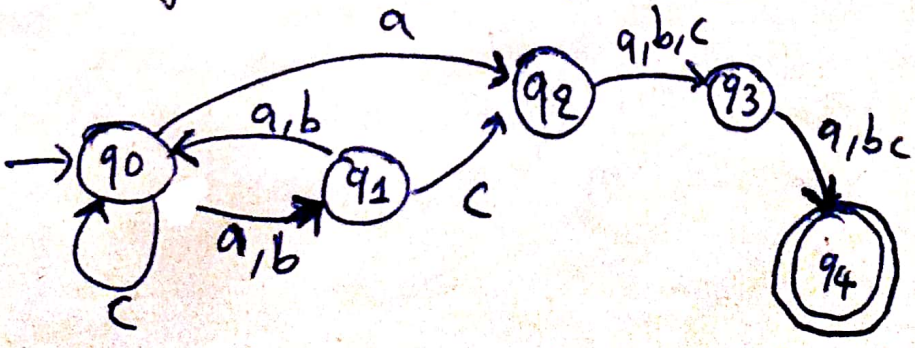
e) Contenant exactement 1 b



f) l'ensemble des mots sans b



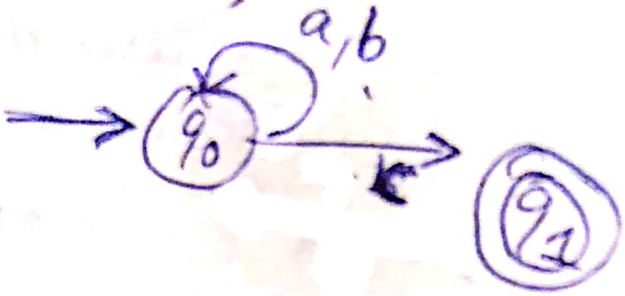
g) Au moins 3 lettres dont la 3e à partir de la fin est un a ou un c



Exercice 6

(4)

(a) $(a+b)^*$



(b) $a^*(\varepsilon + ab)a + \varepsilon$