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MID-SEM-1
Theory Of Computation (TOC)

UNIT- I

Q.1
(c) NFA to DFA
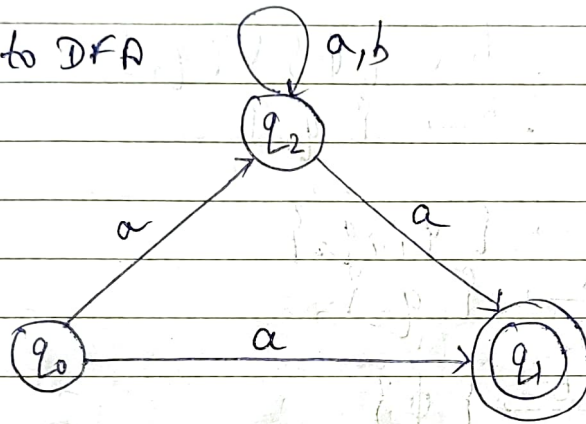
Transition Table   NFA - DFA

ε-closure :-	a	b
q_0	q_1, q_2	ϕ
q_1	ϕ	ϕ
q_2	q_1, q_2	q_2

DFA ⟶

	a	b
q_0	q_1, q_2	ϕ
q_1	ϕ	ϕ
q_2	q_1, q_2	q_2
q_1, q_2	q_1, q_2	q_2

P.T.O

Also; can be written as:-

- $\{q_1, q_2\} \xrightarrow{a} \{q_1, q_2\} \cup \{\phi\}$
  $\xrightarrow{a} \{q_1, q_2\}$

- $\{q_1, q_2\} \xrightarrow{b} \{\phi\} \cup \{q_2\}$
  $\xrightarrow{b} \{q_2\}$

- $q_2 \xrightarrow{a} \{q_1, q_2\}$
  $\xrightarrow{b} \{q_2\}$
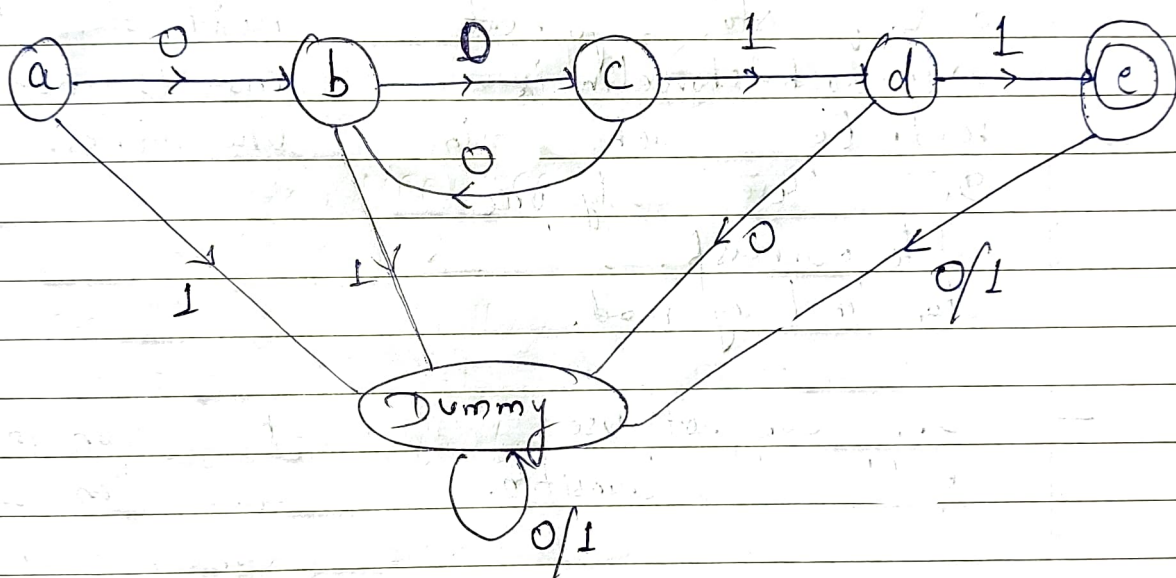
- $q_0 \xrightarrow{b} \{\phi\}$

DFA machine will be :-

Q.1
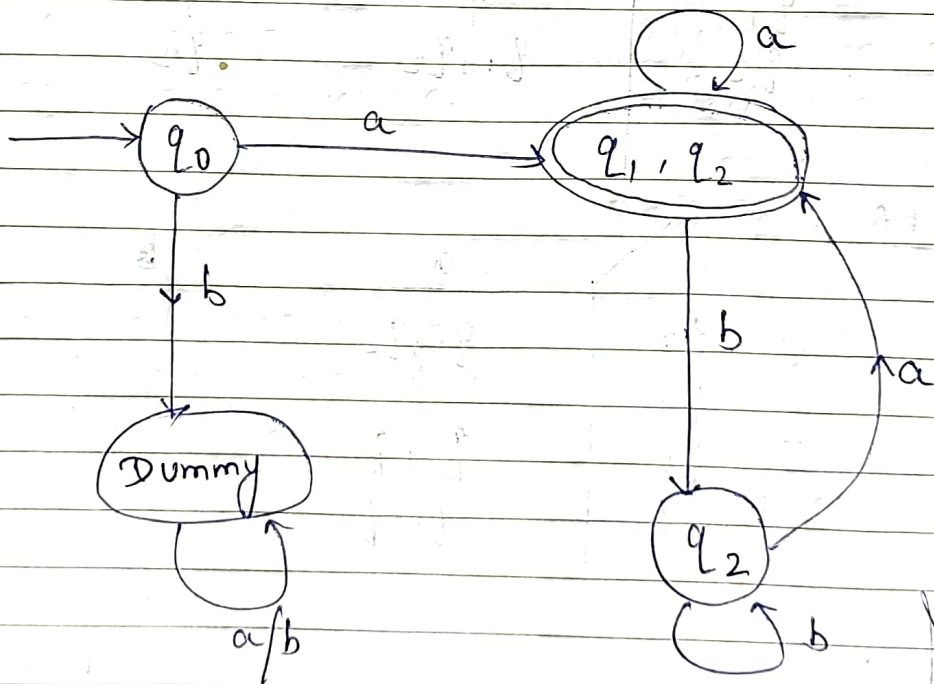
(1) $L = 00(00)^* 11$

$= 00 \{ \varepsilon , 00, 0000, 000000, \ldots \} 11$

$= 0011, 000011, 00000011 \ldots$

DFA machine will be:-

UNIT- II

Q.2

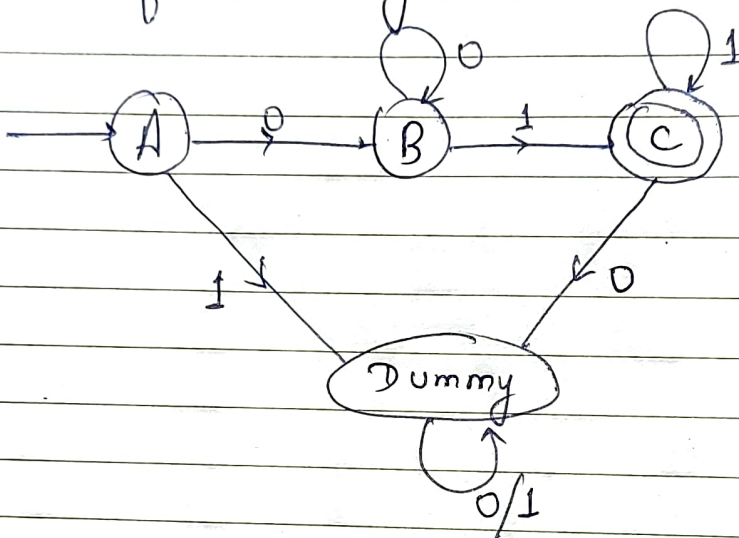① (a) L = 0^+1^+

= {0, 00, 000, 0000. ....} · {1, 11, 111, ...}

= 01, 011, 001, 0011, 000111 .....

DFA for the string :-

IInd Part

(b) L = $a^* b^* c$

= { ε, a, aa, aaa--- } · {c, b, bb, bbb...} · c

= {c, abc, aabc, abbc, aaabc -----

DFA for the string :-

Page No.
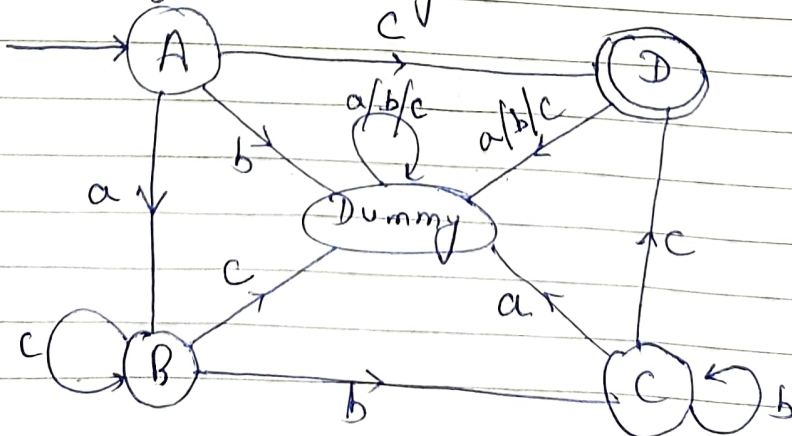
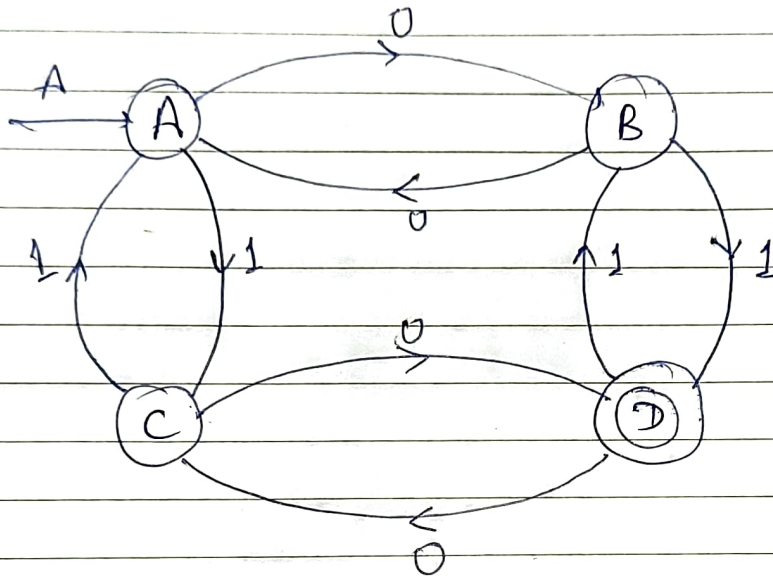# Q.2 (D)

$$L = 01, 0111, 0001, \cdots \cdots$$

DFA machine will be :-