class test 03

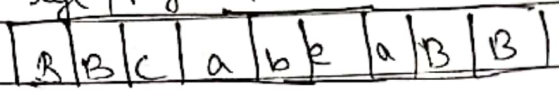
① Explain turing machine with an example.

> $TM = \{\Sigma, Q, q_0, F, \Gamma, B, \delta\}$

Σ - input alphabet
Γ - tape alphabet
Q - Set of state
B - Blank Symbol
q_0 - start state
δ - transition state
F - final state

left | Right ← read/write →

Eg:



finite control unit

$\delta = Q \times \Gamma \times (L/R)$

② properties of regular language

> (i) Regular language are closed under union (U)
(ii) Regular language are closed under complementation R_1, L_2
(iii) Regular language are closed under intersection $R_1 \cap R_2$
(iv) RL are closed under difference $R_1 - R_2$
(v) RL are closed under reversal
(vi) RL are closed under homomorphism
(vii) closure property useful for building complex automata
(viii) decision property - useful to decide whether automata define the same language so that we can reduce the no. of states & their cost can be reduced.