SEC-2

(2) write short notes of the following:

i) Halting problem of TM
ii) Recursive language
iii) varients of TM

i) Halting problem of TM :-

a) The description of a Turing Machine M and an input w, does M, when started in the initial configuration qow, perform a computation that eventually halts.

b) Now we ask whether M applied to w, or simply (M, w) halts or does not halt.

c) The domain of this problem is to be taken as the set of all Turing machine and all w; that is, we are looking for a simple Turing machine that given the description of an arbitarary M and w, will predict whether or not the computation of M applied to w is halt.

ii) Recursive language :-

a) A language L over input set Σ is called recursive if there is a TM that accepts every valid strings in L and rejects every string in $\bar{L}$.

b) Recursive language is also called decidable language because a TM can decide membership in these language.

c) Every recursive language is recursively enumerable language.

iii) Variety of TM :-

a) Multiple track TM

b) Two-way infinite Tape TM

c) Multiple tape TM

d) Multi tape Multi head TM

e) Multi dimension Tape TM

f) Multi head TM

g) Non-deterministic TM