Section - B

Q.2

(i) Diff^n b/w Actual and potential evapo Transpiration

* Potential evapotranspiration :-

→ it is the amount of water that could be evaporated and transpired if there were sufficient water available.

→ it is the rate at which evapotranspiration would be occurs from a large area completely and uniformly covered with growing vegetation which has access to an unlimited supply of soil water and without advection or heat storage effect.

* Actual evapotranspiration :-

→ it is the amount that actually occurs because there is a deficiency of water

→ During the summer mostly PET is highest but, so is the potential for water shortage

Diff^h b/w field capacity and permanent wilting point :-

Field capacity :- (FC or θ_{fc})

→ Soil water content where gravity drainage becomes Negligible.

→ Soil is Not saturated but still a very wet condition.

→ Traditionally defined as the water content corresponding to a soil water potential of -0.3

permanent wilting point (PWP or θ_{WP})

→ Soil water content beyond which plants cannot Recover from water stress (dead)

→ Still some water in the soil but Not enough to be of use to plants

→ Traditionally defined as the water content corresponding to -15 bars of θ_{WP} (pf 4.2)

(111) Diff b/w Depression Storage and Interception :-

* Depression Storage :-

→ Rain water retained in puddles, ditches and other depression on the ground surface. As soon as rainfall excess begins to fill Depression.

→ water held in Depression at the end of rain either evaporates or contributes to soil moisture and/or subsurface flow by flowing in infiltration.

* Interception :-

→ fraction of the gross precipitation input which wets and adheres to above ground objects until it is returned to the atmosphere through evaporation.

(IV) Diff^n B/w Infiltration capacity and Infiltration Rate -

* Infiltration capacity :-

→ The infiltration capacity of soil is defined as the max^m rate at which it is capable of absorbing water and is denoted by 'f'

→ If $i >= f$ then $f_a = f$ (Depend upon soil capacity)

→ If $i < f$ then $f_a = i$ (Depend upon Rainfall intensity)

where, f_a = actual infiltration capacity
i = rate of rainfall
f = infiltration capacity.

* Infiltration Rate :-

→ It is the velocity or speed at which the water enters into the soil.

→ It is usually measured by the depth of the water layer that can enter the soil in one hour.

→ Rate at which water enters the soil at the surface is denoted by $f(t)$

$$f(t) = \int_0^t f(t)\,dt \Rightarrow f(t) = \frac{df}{dt}$$