THE HYDROLOGICAL CYCLE

1. a) E - Surface run-off

   F - Evaporation

   G - Condensation

   b) A watershed is a ridge line boundary line separating drainage basins or river systems while a catchment area wetland which a river draws its water.

2.

- Heavy rainfall /high intensity of rainfall/
- Low rate of evaporation
- Sloping ground/steep slopes
- Presence of vegetation/bare surfaces
- Saturated soil surfaces.

3. Is the endless circulation of water from earth's surface to the atmosphere as moisture or water vapour and back to the surface of the earth as rain or snow with source of energy being the sun.

4. **Type, amount and duration of rainfall** e.g light showers in long duration reaching the ground facilitate infiltration as apposed to heavy rain in showt duration

   Nature of slope- Level land hold water on ground long enough to infiltrate than on steep slope where run-off is accelerated.

   Level of soil saturation-Infiltration is greater in areas with lower water table and lower soil water than in higher water table with high amount of soil water

   Soil type- Coarse grained soil allow greater infiltration than fine grained compact soil

5 a) Refer to all water held in form of ice in storage on the earth surface.

b)

- Provide underground water
- Ecological balance
- Formation of clouds
- Oxygen and carbon dioxide cycles
- Occurrence of leaching which is soil forming process.

6. Dew, mist, fog snow, snow, frost
7. **Type, amount and duration of rainfall** e.g. light shower reaching the ground gently will facilitate infiltration as opposed to heavy storm which encourage run off.

The duration the rainfall takes also determine the rate at which it infiltrates i.e. longer shower enhance infiltrates while short heavy storm encourages run off.

Nature of the slope: flat land holds water onto the earth surface longer hence encourages infiltration but when the land is sloppy surface, run off is accelerated.

Amount of water already in the soil e.g the lower the water table, the lower the chances of run off; but the higher the water table, and amount of water in the soil, the higher the surface run off.

Vegetation cover: Where vegetation is thick, the rate of run off would be reduced because the rain drop impact will be reduced. A lot water will be retained through interception hence lower rates of surface run off.

Soil type: Course-grained open textured sandy soil have higher infiltration rate than fine grained compact soil. This reduces run off. Likewise, deep uniformly permeable soil have extensive infiltration hence lessens the chances of overland flow.

Environmental factors e.g where the rate of evaporation exceeds the rate of infiltration, surface runoff is minimized (if other factors are treated constant) but where the rate of evaporation is lower overland flow will be higher.

Human activities: This can control runoff deliberately by construction of reservoirs acting like natural water bodies.

In urban areas, surface sealing by concrete and bitumen accelerates surface runoff.

Agricultural practices can also modify runoff through contour farming and levee construction which will store water and increase both infiltration and evaporation at the expenses of runoff.

8.

- Reducing the rate of deforestation and increasing afforestation and reaforestation programmes so as to facilitate transpiration process
- Activities which can cause global warming such as releasing chlorofluorocarbons in the atmosphere should be reduced so that water held in the cyrosphere can still be maintained and used as storage in future

- Avoiding excessive harvesting of sand on river beds.