1. What are the main factors that determine and influence irrigation?

A. Water Quality (The turbidity, water temperature, BOD/COD, Sodium Adsorption Ratio and toxicity of water would affect irrigation. The higher the quality of water, the higher the crop yields.)

B. Local weather patterns. (Irrigation is directly affected by the local climate. For example, irrigating crops in sunny/warm regions can produce higher crop yields than regions that get all water from rainfall)

C. Soil type. (The type of soil in an area can affect not only the type irrigation method used but also the irrigation run times. For example, in arid soil, only 50 – 30% of water allocated for irrigation reaches the plant roots.)

D. Means of Irrigation. (Sprinkler irrigation, drip irrigation, flood and furrow irrigation, rain)

E. Crops. Different types of crops need different amounts of irrigation. (Growth of plants, their height, and the depth and distribution of their roots required different irrigation methods.)

2. What is water-saving irrigation? Why should crop irrigation save water?

Saving irrigation maximizes crop yield with minimal water consumption. Freshwater is precious, and the traditional irrigation method of crops wastes too much water. Using relatively advanced irrigation techniques as well as sprinkler irrigation meet the needs for the normal growth rate of crops, compared with traditional water irrigation by using less water. Agricultural production is not limited to the supply of crops, but also bears the responsibility of stabilizing ecology and sustainable development. Water-saving irrigation is a kind of protection method through the effective use of water resources, and ultimately achieves the goal of sustainable development.

3. What is the difference between evaporation and transpiration?

Transpiration is the process by which plants lose water out of their leaves. Evaporation, on the other hand, is the process by which water changes from a liquid to a gas or vapor. Evaporation is the primary pathway that water moves from the liquid state back into the water cycle as atmospheric water vapor.
4. **Infiltration and percolation are related, what are their differences?**

Infiltration and percolation are two related but different processes describing the movement of moisture through soil. Infiltration is defined as the downward entry of water into the soil or rock surface, and percolation is the flow of water through soil and porous or fractured rock.

5. **What are two types of subsurface drainage systems?**

Open ditch and buried tile lines are two of the subsurface drainage systems. Open ditches are used to lower the water table in poorly drained soil. The water table is deepest next to the ditch, and the drainage effect diminishes with distance from the ditch. Buried tile lines made of perforated plastic pipe act similarly to the open ditches, but have the advantages of not being visible after installation and not presenting an obstacle for mechanized equipment.