1. What is the main difference between confined and unconfined aquifers?

a) Depth below the surface
b) Permeability of the aquifer
c) Presence of a confining layer
d) Aquifer size

Answer: c) Presence of a confining layer

Explanation: Confined aquifers are sandwiched between impermeable layers, restricting water flow, while unconfined aquifers have no such confining layer, allowing water to flow freely.

2. Which of the following is NOT an aquifer property?

a) Transmissivity
b) Porosity
c) Specific gravity
d) Permeability

Answer: c) Specific gravity

Explanation: Specific gravity is a measure of the density of a substance compared to the density of water, not a property directly related to aquifers.

3. In well hydraulics, what condition is assumed for steady flow?

a) Constant discharge

b) Constant water level
c) Constant pump pressure
d) Constant temperature

Answer: b) Constant water level

Explanation: Steady flow conditions in wells assume that the water level remains constant over time.

4. What is the purpose of infiltration galleries in groundwater recharge?

a) To extract water from aquifers
b) To prevent water logging
c) To increase groundwater storage
d) To reduce salt efflorescence

Answer: c) To increase groundwater storage

Explanation: Infiltration galleries are structures designed to increase the recharge of groundwater by allowing surface water to infiltrate into the aquifer.

5. What is the primary cause of water logging in irrigation?

a) Over-pumping of groundwater
b) Excessive rainfall
c) Poor drainage
d) Salt accumulation

Answer: c) Poor drainage

Explanation: Water logging occurs when water accumulates on the soil surface or within the root zone due to inadequate drainage.

6. Salt efflorescence is primarily caused by:

a) Over-irrigation
b) Excessive groundwater recharge
c) Soil erosion
d) Saltwater intrusion

Answer: a) Over-irrigation

Explanation: Salt efflorescence occurs when soluble salts in the soil are brought to the surface through capillary action by excessive irrigation water.

7. Which method is NOT used for reclaiming waterlogged and salt-affected lands?

a) Installing drainage systems
b) Adding gypsum to the soil
c) Implementing drip irrigation
d) Applying organic matter

Answer: c) Implementing drip irrigation

Explanation: Drip irrigation is a method of irrigation and not typically used for reclaiming waterlogged or salt-affected lands.

8. What parameter is measured during a well yield test?

a) Pump efficiency
b) Water quality
c) Water table depth
d) Discharge rate

Answer: d) Discharge rate

Explanation: A well yield test measures the rate at which water can be pumped from a well under specific conditions.

9. Specific capacity of a well is defined as:

a) The total depth of the well
b) The volume of water produced per unit time
c) The discharge rate per unit drawdown
d) The efficiency of the pumping system

Answer: c) The discharge rate per unit drawdown

Explanation: Specific capacity is a measure of the efficiency of a well and is calculated as the discharge rate divided by the drawdown of the water level.

10. Which of the following is an advantage of well irrigation?

a) High initial cost
b) Dependence on weather conditions

c) Uniform water distribution
d) Limited access to water

Answer: c) Uniform water distribution

Explanation: Well irrigation typically provides more uniform water distribution compared to surface irrigation methods.

11. What is the main disadvantage of well irrigation?

a) High water table depletion
b) Risk of water contamination
c) Limited coverage area
d) High energy consumption

Answer: d) High energy consumption

Explanation: Well irrigation often requires energy to pump water from the aquifer to the surface, leading to high energy consumption.

12. Which type of well construction is most commonly used for agricultural irrigation?

a) Dug wells
b) Driven wells
c) Tube wells
d) Caisson wells

Answer: c) Tube wells

Explanation: Tube wells, which consist of a narrow tube inserted into the ground, are commonly used for agricultural irrigation due to their efficiency and ease of construction.

13. What is the primary purpose of conducting yield tests on wells?

a) To determine water quality
b) To estimate pumping costs
c) To assess well efficiency
d) To calculate recharge rates

Answer: c) To assess well efficiency

Explanation: Yield tests are conducted to assess the efficiency and performance of a well by measuring its discharge rate under specific conditions.

14. Which method is used for improving groundwater storage?

a) Groundwater extraction
b) Aquifer dewatering
c) Artificial recharge
d) Saltwater intrusion

Answer: c) Artificial recharge

Explanation: Artificial recharge involves intentionally adding water to aquifers to increase groundwater storage and replenish depleted groundwater reserves.

15. What effect does salt efflorescence have on soil fertility?

a) Increases soil fertility
b) Decreases soil fertility
c) No effect on soil fertility
d) Varies depending on the salt type

Answer: b) Decreases soil fertility

Explanation: Salt efflorescence can lead to soil salinization, which inhibits plant growth and decreases soil fertility over time.