

### **Ph.D. Examination of Water Resources**

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**Answer All Questions:**

**Choose the most correct answers for the following:**

**Q1-Permeability is \_\_\_\_\_ .**

- 1-the ability of a solid to allow fluids to pass through
- 2-the process by which plants release water vapor to the atmosphere
- 3-the amount of water vapor in the air relative to the maximum amount of water vapor the air can hold.
- 4-the percentage of pore space in the rock

**Q2-Which of the following statements about the water table is false?**

- 1-the water table changes when discharge is not balanced by recharge
- 2-the water table is generally flat
- 3-the water table is above the land surface in lakes
- 4-the water table is depressed near high volume pumping wells

**Q3-The infiltration of water into the subsurface is the \_\_\_\_\_ .**

- 1-influent
- 2-effluent
- 3-discharge
- 4-recharge

**Q4-Hard water contains large amounts of \_\_\_\_\_ .**

- 1-lead
- 2-sodium
- 3-calcium
- 4-silicon

**Q5-The boundary between two watersheds is called a:**

- 1-divide
- 2-continental shelf
- 3- scarp
- 4- water table
- 5-plateau

**Q6-Darcy observed that flow in a column depends on**

- (1) temperature
- (2) porosity
- (3) pore size
- (4) column weight
- (5) none of the above

**Q7-In a confined aquifer at the upper boundary**

- (1) the pressure head is positive
- (2) the pressure head is negative
- (3) the pressure head is zero
- (4) the hydraulic gradient is zero
- (5) none of the above

**Q8. The most accurate method for hydrograph separation is :**

- A) Straight line method.
- B) Fixed base length.
- C) Variable slope method.

**Q9. The most accurate method for determining the average rainfall of a given area is:**

- A) Arithmetic mean.
- B) Isohyatel map.
- C) Thiessen polygons

**Q10. Potential evapotranspiration can be calculated by:**

- A) Thornthwait's method.
- B) Stiff diagram.
- C) Boulton's method

**Q11. Hydraulic properties of the aquifer can be determined by**

- A) Experimental studies
- B) Pumping test data analysis
- C) Numerical techniques.

**Q12-Specific storage coefficient has the same unit as**

- (1) specific yield
- (2) Reynolds number
- (3) storativity
- (4) permeability
- (5) none of the above

**Q13- Name and describe the main ways in which a stream transports sediment**

**Q14-Discuss the catchment area characteristics and their effects on runoff.**

**Q15-Discuss the water type and water formula.**

**Q16-Define the followings river characteristics**

- a- Wetted Perimeter.    b- Cross sectional area.    c- Average speed.
- d- Hydraulic radius.        e- Sediment transport relation with river  
depth and velocity.

**Q17: What is the type of fault on: (Divergent; Convergent; and Transform) boundary?**

**Q18: Briefly describe the common types of faults.**

**Q19: What are the differences between extension faults and contraction faults?**

**Q20: Give some evidence that supports the tectonic activities in Iraq.**