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SECTION-5

Q.No(2)

Ans (i) Well losses

(1) When water is pumped out of well the total drawdown caused by well not only depth of the logarithmic drawdown curve at the well face but also drawdown caused by flow through well screen and axial movement with in the well.

(2) Where, turbulent flow generally occurs near the well face this loss may be taken to be proportional to Q^n.

Rewriting equation $\left[Q = \frac{\pi k (h_2^2 - h_1^2)}{\log_e \frac{r_2}{r_1}}\right]$

and adding well losses can to it.

for confined, $s = (H - h) = (Q / 2\pi k B) \log_e$ $(R/r) + C Q^n$

Where the above, we get, $s = C_1 Q + C Q^n$

Where the constant C is governed by several factors such as well radius, construction and condition of the well.

3) Re writing the above, we get $s = CQ + CQ^n$

where $C = \frac{\log(R/r)}{2\pi kB}$, CQ = Aquifer loss

CQ^n = well loss

(ii) Specific capacity and specific yield

(a) Specific ~~capacity~~ yield: It while porosity gives a measure of the water storage capability of a formation not all the water held in the pores available for extraction by pumping or draining by gravity.

ii) The pores hold back some water by molecular attraction and surface tension.

(b) specific capacity: The specific capacity of a well is defined as the well yield per unit drawdown.

Specific capacity = $\frac{\text{Discharge of well}}{\text{Drawdown}}$

$= \frac{Q}{CQ + CQ^n} = \left[\frac{1}{C + CQ^{n-1}}\right]$

(iv) Aquifer and Aquiclude:

(a) Aquifer:- It is saturated formation of earth material which not only stores water but yields it in sufficient quantity. Thus an aquifer transmits water relatively easily due to its high permeability.

(i) Unconsolidated deposits of sand and gravel form good aquifers.

(b) Aquiclude:- It is a geological formation which essentially impermeable to be an aquifer below it the flow of water.

(ii) It may be considered as closed to water movement even though it may contain water due to its high pore space.

(v) Radius of influence and cone of depression:

(a) Radius of Influence:- The circular extent of the cone of depression is called area of influence and its radius extent radius.

(b) Cone of depression:- If the aquifer is homogeneous and and is tranik and the water table assumes a conical shape called cone of depression