Section. 4

Ans 2

Expression for discharge from the well in a.

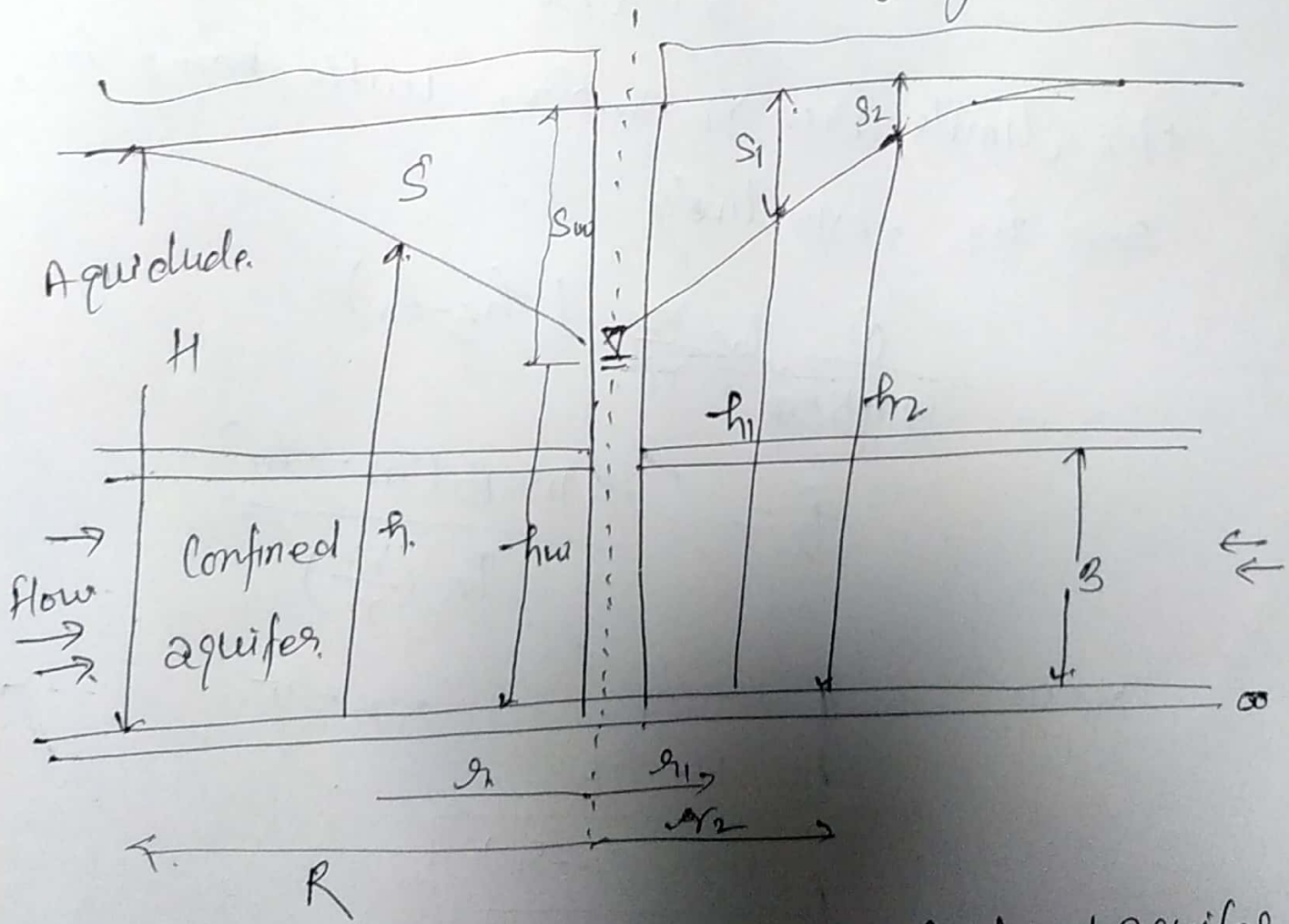
Confined aquifer :→

The discharge a steady flow. Q

the original piezometric head. H and draw-

down due to pumping is indicated the..

Pumping well is hw. and the drawdown. Sw



Well. operating in a Confined aquifer

the darcy's law

$$V_r = K \frac{dh}{dr}$$

The cylindrical surface through which this velocity occurs is $2\pi rB$

Hence by equating the discharge entering this surface to the well discharge

$$Q = 2\pi r B \left(K \frac{dh}{dr}\right)$$

$$dh = \frac{Q\, dr}{2\pi K B r}$$

the limits are r_1 and r_2 with being h_1 and h_2 respectively

$$\frac{Q}{2\pi KBr} \log \frac{r_2}{r_1} (h_2 - h_1)$$

$$Q = \frac{2\pi KB(h_2 - h_1)}{\ln\left(\frac{r_2}{r_1}\right)}$$

Now $S_1 = H - h_1$ $\quad KB = T$

$S_2 = H - h_2$

$$\boxed{Q = \frac{2\pi T(S_1 - S_2)}{\ln\left(\frac{r_2}{r_1}\right)}}$$