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## Answer with simple sketches the following questions:

1) Explain the following:                        (30 degree)

    a) Specific yield and specific retention.

    b) How Transmissivity (T) can dictate the shape of the cone of depression?

    c) Unconfined aquifer, Perched aquifer and Confined aquifer.

2) Discuss how Darcy determined his equation? Try to rearrange the equation using Transmissivity (T).     (18 degree)

3) The following table represents the data of groundwater aquifer.                         (12 degree)

| Transmissivity m$^2$/day | Area of discharge well m$^2$ | Hydraulic conductivity m/day | Hydraulic gradient | Effective porosity |
|---|---|---|---|---|
| 3000 | 0.9 | 100 | 1/1000 | 20 % |

Determine the following:

    a) The saturated thickness of the aquifer.

    b) Darcy velocity for the ground water.

    c) The true velocity of the ground water.

    d) The amount of ground water discharge flow.

4) Explain the following:                        (30 degree)

    a) Permeability and Transmissivity.

    b) The consequences of excessive ground water withdrawal.

    c) The interaction between surface water and ground water.

Best regards

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