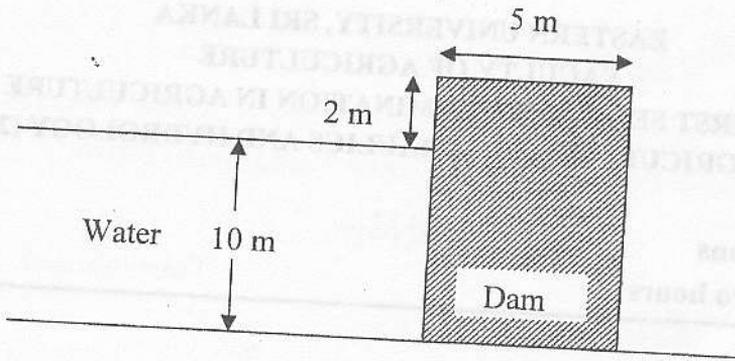


Answer all questions

Time allowed: Two hours

- 1 a. Define the term Interception.
- b. It is intended to install rain gauges to cover an area of 1400 km^2 of flat land. Give your recommendations for the following.
- Number of rain gauges to be installed.
 - Selection of site for each rain gauge.
- c. Write a brief account on Isohytal method of estimating the rainfall.
2. a. i) What is Unit hydrograph?
- ii) Give the steps of the derivation of Unit hydrograph.
- b. Briefly describe the sources of run off.
- c. Write a brief account on the mechanics of infiltration.
3. a. Define the following,
- Fluid pressure
 - Intensity of pressure
 - Center of pressure
- b. A concrete dam rectangular section 12m high and 5m wide has water standing 2m below its top as shown in the figure. Find,
- The total pressure on one meter length of dam
 - Height of center of pressure above the base.
 - If the Co-efficient of friction between the wall and the soil surface is 0.6 , check the stability of the dam. (Assume the weight of concrete = 2200 kg/m^3 and Specific weight of water = 1000 kg/m^3)



- 4.
- State the Bernoulli's Theorem for liquid flow.
 - List the types of losses of head when liquid flows under pressure through pipe.
 - An overhead water tank for a multi-storeyed building maintains a head of 40 m above the ground floor level of the building. A pipe of diameter 10 cm and 100 m long conveys water to the ground floor. Determine the velocity at the exit of the pipe. Take Darcy's Co-efficient of friction = 0.06.