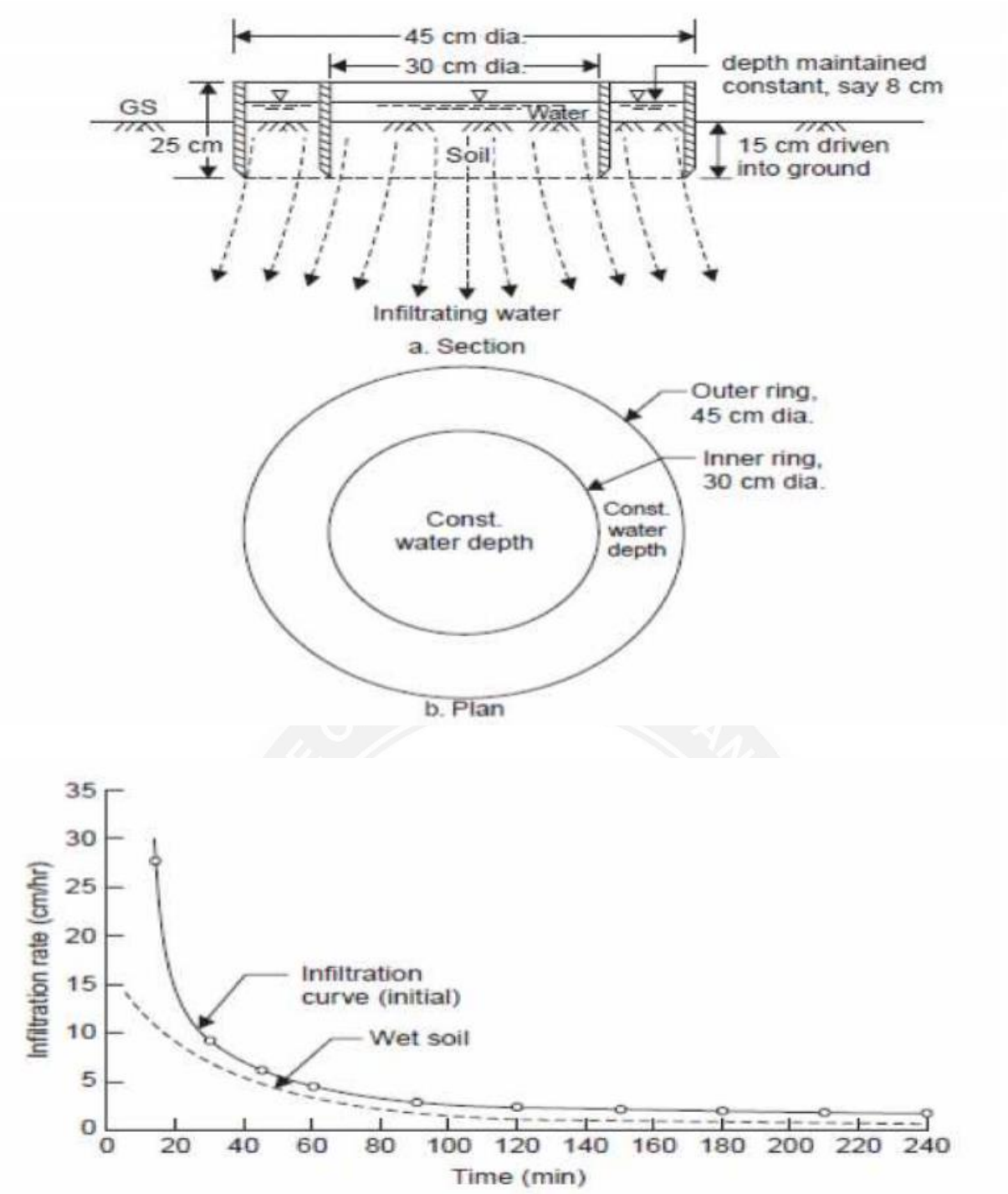
I METHODS OF DETERMINING INFILTRATION

The methods of determining infiltration are:

(i) Infiltrometers
(ii) Observation in pits and ponds
(iii) Placing a catch basin below a laboratory sample
(iv) Artificial rain simulators
(v) Hydrograph analysis

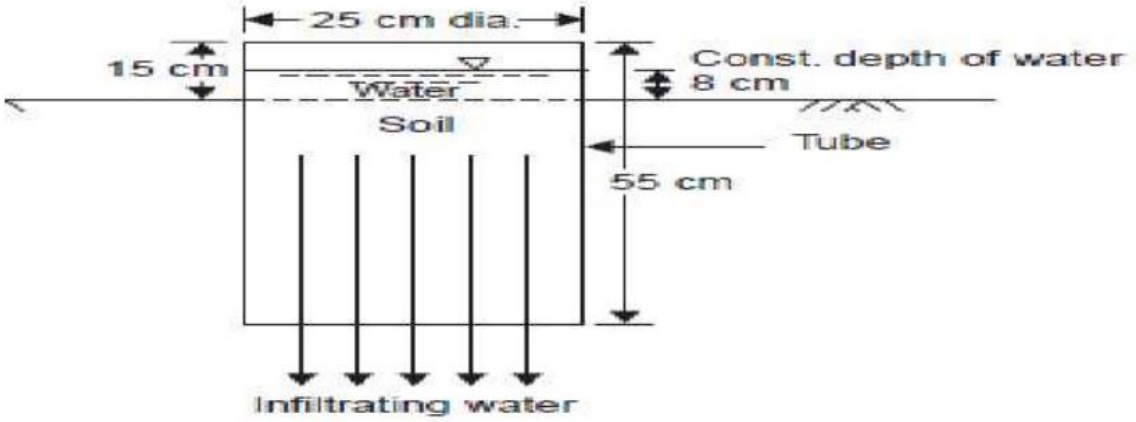
1.1 Double-ring infiltrometer.

A double ring infiltrometer is shown in Fig. The two rings (22.5 to 90 cm diameter) are driven into the ground by a driving plate and hammer, to penetrate into the soil uniformly without tilt or undue disturbance of the soil surface to a depth of 15 cm. After driving is over, any disturbed soil adjacent to the sides tamped with a metal tamper. Point gauges are fixed in the centre of the rings and in the annular space between the two rings. Water is poured into the rings to maintain the desired depth (2.5 to 15 cm with a minimum of 5 mm) and the water added to maintain the original constant depth at regular time intervals (after the commencement of the experiment) of 5, 10, 15, 20, 30, 40, 60 min, etc. up to a period of atleast 6 hours is noted and the results are plotted as infiltration rate in cm/hr versus time in minutes as shown in Fig.. The purpose of the outer tube is to eliminate to some extent the edge effect of the surrounding drier soil and to prevent the water within the inner space from spreading over a larger area after penetrating below the bottom of the ring



1.2 Tube infiltrometer.

This consists of a single tube about 22.5 cm diameter and 45 to 60 cm long which is driven into the ground atleast to a depth up to which the water percolates during the experiment and thus no lateral spreading of water can occur (Fig.). The water added into the tube at regular time intervals to maintain a constant depth is noted from which the infiltration curve can be drawn


25 cm dia.
15 cm
Water
Soil
Const. depth of water
8 cm
Tube
55 cm
Infiltrating water