International Institute of Information Technology Hyderabad
Hydroinformatics and & Climate Sciences – Spring 2026

Date: 30/01/2026 **Quiz-1 Examination** **Total Marks: 50**

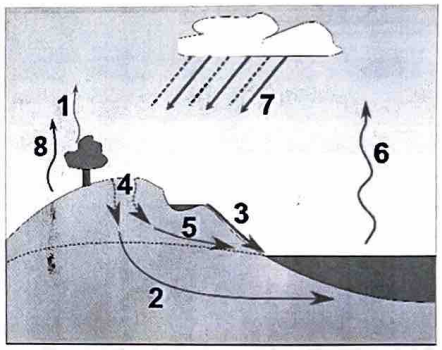
I. Answer the following short-answer questions [5 x 2 = 10 Marks]

1) What is rainfall interception?
2) What is infiltration capacity, and how is it connected with rainfall intensity?
3) How would the hydrological cycle be affected if all precipitation over land were in the form of snow instead of rain?
4) In a given year, a catchment with an average area of 1750 km2 received 1250 mm of precipitation. The average rate of flow measured in a river draining the catchment was 25 m3/s. Estimate the runoff coefficient, and what is the percentage of losses ?
5) If the diameter of the pipe is 5 cm, and the water is flowing with velocity of 4 m/s, what will be the quantity of the water flowing in the pipe ?

II. Fill in the following Blanks [5 x 1 = 5 Marks]

6) The instrument used to measure the lake evaporation is .....
7) If precipitation is 1500 mm, runoff is 500 mm, and evapotranspiration is 800 mm, then the change in storage (ΔS) is ..... mm.
8) If precipitation in a watershed increases while evapotranspiration remains constant, the amount of ..... is likely to increase.
9) Runoff coefficient is the ratio of _____
10) The stage height of a river is the _____ of the water surface at a particular point.

III. Answer the following long-answer questions



11) Write the hydrological components based on the assigned numbers in the figure. [5Marks]
12) Explain the different Sampling patterns in the acquisition of hydroclimatic data? [10 Marks]
13) Discuss Data Acquisition System for collecting hydroclimatic data and their importance in water resource management. [5 Marks]
14) Explain the water balance equation and its significance in hydrological studies. [5 Marks]
15) A river basin has the following average annual water balance: Precipitation (P) = 900 mm; Evapotranspiration (ET) = 450 mm; Runoff (R) = 350 mm. In a drought year, precipitation reduces by 30%, and evapotranspiration remains the same. If runoff is reduced by 40%, determine the change in storage (ΔS). [5 Marks]

16) A piece of soil as represented in the below Figure, in which the water adding from top. The water level has been changed from 10 cm to 3 cm after 2 hours. Explain process happening over the two cases and how it influences groundwater recharge. [5 Marks]