



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2023 & Previous admissions
III Semester Final Examination – January 2025

Lwre.2104

Watershed Hydrology (2+1)

Marks: 50
Time: 2 hours

- I Fill in the blanks (10x1=10)**
1. Isohyet is a line joining of equal _____.
 2. The value of light rainfall intensity is _____.
 3. Kirpich's formula is used for computation of _____.
 4. Lysimeter is used to measure _____.
 5. A tropical cyclone in the northern hemisphere is a zone of _____.
- State True or False**
6. Muskingum equation is used in both prism and wedge storage.
 7. An isochrone is a line on the basin map connecting points having equal time of travel of the surface runoff to the catchment outlet.
 8. Drainage density 5-10 km/km² is called fine.
 9. An area is classified as a drought prone area if the probability P of occurrence of a drought is $0.2 \leq P \leq 0.40$.
 10. An ephemeral stream have base flow contribution.
- II Write short notes on ANY FIVE of the following (5x2=10)**
1. Environmental Flow
 2. Prism Storage
 3. Elements of Hydrograph
 4. Factors Affecting Depression Storage
 5. Thornthwaite Method
 6. Hydrological Drought
 7. Rating Curve
- III Answer ANY FIVE of the following (5x4=20)**
1. The normal annual rainfall at stations A, B, C and D in a basin are 80.97, 67.59, 76.28, and 92.01 cm, respectively. In the year 1975, the station D was inoperative and the stations A, B, and C recorded annual rainfall of 91.11, 72.23, and 79.89 cm, respectively. Estimate the rainfall at station D in that year.
 2. Explain step by step procedure to estimate average precipitation using Isohyetal Method.
 3. Explain about Lysimeter.
 4. Write the fundamental hypotheses of the SCS-CN method.
 5. Define the followings
 - (a) Direct runoff
 - (b) base flow.
 6. List the assumptions involved in the unit hydrograph theory.
 7. Write the indices used for drought monitoring.

IV

Write an essay on ANY ONE of the following

(1x10=10)

1. In a 350 ha watershed the CN value was assessed as 70 for AMC-III. Estimate the value of direct runoff volume for the following 4 days of rainfall. The AMC on July 1st was of category III.

Date	July 1	July 2	July 3	July 4
Rainfall (mm)	50	20	30	18

2. Explain about technical strategies to mitigate the adversities of drought.
