

Roll No

CE-6005 (1) (CBGS)**B.E. VI Semester**

Examination, November 2019

Choice Based Grading System (CBGS)**Advanced Water Resources Engineering***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.
 ii) All questions carry equal marks.
 iii) Assuming missing data suitably.

1. a) Explain the different types of frequency analysis methods? 7
 b) Explain about portable maximum precipitation. 7
2. a) The annual rainfall in 4cm at 4 existing raingauge stations in a basin is 105, 79, 70 and 66. If the average depth of rainfall over the basin is to be estimated within 10% error. Determine the additional number of gauges needed. 7
 b) Explain in detail about the depth area duration analysis. 7
3. Using the crest segment routing method determine the attenuation in peak flow and lag time between the peaks of hydrograph. When it passes through a stream reach whose Muskingum parameters are given as $k = 9h$ and $x = 0.125$. The ordinates of the hydrograph in $m^{(3/3)}$ at 4h interval are 50, 52, 140, 197, 233, 250, 230, 204, 180, 154, 127, 106, 89, 74, 65. 14

4. a) Write the importance of linear programming in system analysis of water resources? 7
 b) Explain in detail about reservoir operation. 7
5. a) Explain about the flood routing through the reservoir. 7
 b) Write about dynamic programming and how it is used in the reservoir allocation. 7
6. a) Write short notes on the double mass curve. 7
 b) Explain briefly about project optimality analysis? 7
7. Write short notes on: 14
 a) Recording type rain gauge
 b) Updating of network
 c) Risk Analysis
 d) Hydrology
8. a) Briefly write about flood management techniques. 7
 b) Describe briefly about the concept of correlogram. 7
