

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC SEM-III Examination-Dec-2011

Subject code: X30601

Date: 13/12/2011

Subject Name: Hydrology & Water Resources Engineering

Time: 2.30 pm -5.00 pm

Total marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1** (a) Define and explain hydrological cycle with neat sketch **07**
(b) Explain “Arithmetic mean method” to calculate average rainfall of a catchment area **07**
- Q.2** (a) How the rainfall is measured? Explain non- recording type of rain gauge with neat sketch. **07**
(b) Explain the Gumbel’s method. **07**
- (b) A flood of a certain magnitude has a return period of 50 years **07**
1) What is its probability of exceedance?
2) What is the probability that this flood may occur at least once in the next 25 years?
- Q.3** (a) Explain the method of determining direct run-off from a given storm hydrograph. **07**
(b) What are the factors that affect run-off from a basin area **07**
- Q.3** (a) Discuss the applications of the unit hydrograph in detail. **07**
(b) What is S-hydrograph? Explain the method of construction of it. **07**
- Q.4** (a) Define and explain: **07**
1) Such age storage 2) Bank storage 3) Valley storage
(b) Discuss the methods to control the floods. **07**
- Q.4** (a) Discuss the types of aquifers with neat sketches. **07**
(b) How the capacity of a reservoir is determined? **07**
- Q.5** (a) Write short note on “Thiessen Polygon method”. **07**
(b) Define and explain Ø-Index and W-index. **07**
- Q.5** (a) Discuss the “California method “of flood frequency analysis. **07**
(b) Write short note on rainwater harvesting. **07**
