PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2019 - 20 Examination

Semester: 5   **Date: 26/11/2019**
Subject Code: 03104302   **Time: 10:30am to01:00pm**
Subject Name: Hydrology and Water Resources Engineering **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions -   (All are compulsory) (Each of one mark)   **(15)**
   1. Run off is _____
   2. Delayed interflow is defined as _____.
   3. Intermittent streams are defined as _____.
   4. Which of the following is a recording type Rain gauge-
      (a) Tipping bucket type   (b) Weighing type
      (c) Floating type   (d) All of the above
   5. Precipitation includes-
      (a) Hail   (b) Glaze
      (c) Drizzle   (d) all of the above
   6. Define Cyclone.
   7. Write name of one method for estimating missing rainfall data.
   8. Write Dalton's equation of evaporation.
   9. Define Specific Yield.
   10. The flow-mass curve is graphical representation of_____
   11. Hydrograph is a graphical representation of _____
   12. Write any two factors affecting Evaporation.
   13. Evapotranspiration is measured by using_____
   14. Define Aquifuge
   15. Define Aquitard.

Q.2 Answer the following questions. (Attempt any three)   **(15)**
   A) Differentiate between Aquifer and Aquiclude.
   B) Explain methods of base flow separation.
   C) Explain various factors affecting Flood hydrograph.
   D) Explain any two types of Evaporimeter with suitable diagrams

Q.3 A) Derive the expressions for steady state radial flow into a well under confined aquifer conditions   **(07)**
with suitable sketches.

B) A 30 cm well completely penetrates an unconfined aquifer of saturated depth 40 m. after a   **(08)**
long period of pumping at a steady rate of 500 lpm, the drawdown in two observation wells 25
and 75 m from the pumping well were found to be 3.5 and 2.0 m respectively. Determine the
transmissivity of the aquifer. What is the drawdown at the pumping well?

OR

B) Describe any two methods for calculating average depth of rainfall over an area with suitable   **(08)**
diagrams.

Q.4 A) Explain site assessment and selection for type of dam.   **(07)**

OR

A) Explain various factors affecting run off.   **(07)**

B) The ordinates of a IUH of a catchment are given below. Derive the direct runoff hydrograph for this   **(08)**
catchment due to a storm of duration 4 hours and having a rainfall excess of 5 cm.

Time (h)	0	1	2	3	4	5	6	7	8	9	10	11	12
IUH ordinates cumecs	0	8	35	50	47	40	31	23	15	6	3	0	0