Registration No: | | | | | | | | | | |

Total Number of Pages: 02 **M.TECH**

P2EVCC12

2nd Semester Regular Examination 2016-17

ENGINEERING HYDROLOGY

BRANCH: ENVIORN ENGG., ENVIRONMENTAL SCIENCE AND ENGG

Time: 3 Hours

Max Marks: 100

Q.CODE: Z964

Answer Question No.1 which is compulsory and any FOUR from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions: *Short answer type*** **(2 x 10)**

a) What is a S hydrograph?
b) Draw a neat sketch of hydrologic cycle.
c) Define an unconfined aquifer.
d) Name the two properties of soil on which the possibility of occurrence of ground water depends.
e) What is advection?
f) What are the types of precipitation?
g) Define evapotranspiration.
h) Which equation is used for unsteady flow?
i) Define runoff coefficient.
j) Define coefficient of storage.

Q2 **a)** Briefly discuss about the various types of aquifer with a neat sketch. **(10)**
b) A 50 cm diameter well is being pumped at a rate of 1250 liters/minute. At a distance of 5m from the well being pumped the drawdown was 6m, and at 12m, the drawdown was 2.8m. The bottom of the well is 80m below the ground water table. (a) Find out the coefficient of permeability. (b) If all the observed points were on the dupuit curve, what was the drawdown in the well during pumping? **(10)**

Q3 **a)** Discuss about rainfall-runoff data analysis. **(10)**
b) Briefly discuss about measurement of evaporation. **(10)**

Q4 **a)** Derive Dupuit's equilibrium formula for unconfined aquifer with a neat sketch. **(10)**
b) In an artesian aquifer, the drawdown is 1.2 meters at a radial distance of 10 meters from a pumped well after two hours of pumping. On the basis of Thies' non-equilibrium equation, determine its pumping time for the same drawdown (I.e. 1.2m) at a radial distance of 30 meters from this well. **(10)**

Q5 **a)** Discus how the S hydrograph is developed from a unit hydrograph. **(10)**
b) Briefly discuss about methods of stream flow measurement. **(10)**

Q6 **a)** Discuss about Gumbel's approach of flood estimation using hydrologic data **(10)**

b) Discuss how precipitation takes place? What are its different forms? **(10)**

Q7 **Write short notes on any TWO** **(10X2)**

a) Rain water harvesting

b) Well function.

c) Transportation of Contaminants by advection and diffusion.

d) Meskingham's equation