Roll No. to be filled in your Answer Book

Roll No. | | | | | | | | | | |

B.Tech

(Sem V) (ODD Sem. Examination 2014

Hydrology

Paper ID:-410021

Time : Three Hours] [Max. Marks : 100

Note: (i) Attempt ALL questions.

(ii) All Questions carry EQUAL marks.

(iii) Don't write any thing on the question paper except your roll no.

Q.1. Attempt any FOUR of the following : **5x4=20**

a) What is hydrograph? Draw a single peaked hydrograph and explain its components.

b) What do understand by hydrologic cycle?

c) Explain briefly about Aquifer and aquifuge.

d) What is precipitation? Give its various types.

e) What is evaporation? And factor it depends.

f) Write a short note on application of regression analysis in hydrology?

Q.2. Attempt any FOUR of the following : **5X4=20**

a) Explain infiltration process.

b) Write a short note on area velocity method and DAD.

c) Explain the factor effecting evaporation losses.

d) What is rainfall hydrograph? How it is derived from a rainfall mass curve?

e) Write the short note on D-Hr duration unit hydrograph?

f) What do understand by flood routing?

Q.3. Attempt any TWO of the following : 10x2=20

a) There are four rain gauge stations in the catchment area of river. The average rainfall values at these stations are 750,700,200 and 600 mm respectively. Determine the optimum number of rain gauges in the catchment area, if error in the mean value of rain falls in the catchment to 15%. How many gauges will require to be installed?

b) Explain the Muskingum method.

c) Explain the S-curve hydrograph? How it is constructed and what is it used for?

Q.4. Attempt any TWO of the following : 10x2=20

a) A catchment area of 40 Km^2 has one recording gauge. During a storm, the following mass curve of rainfall was recorded -

Time from start of storm (hr)	0	2	4	6	8	10	12
Accumulated rainfall (mm)	0	7	20	60	72	80	88

If value of the runoff due to storm measured is $1.3X10^6$ m^3. Estimate the ϕ_{index} of the catchment.

b) Derive the Dupuits formula for unconfined aquifer.

c) Write a short note-

i) IDF

ii) Isohyets

iii) Time of concentration

iv) Continuous probability distribution

v) Return period

Q.5. Attempt any TWO of the following : 10x2=20

a) Give the process for determine the statically the optimum number of rain gauge required to be installed in a given catchment.

b) Explain the thiessen polygon method for calculating mean rainfall of an area.

c) Explain the procedure to estimate the parameters K and X in mushkingam equation of flood routing.

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