Roll No. | | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech (Civil Engg) (2016 Batch) (Sem.–1)

HYDROLOGICAL PROCESSES

Subject Code : MTCE-202

Paper ID : [74238]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.
3. Missing data may be suitably assumed.

Q1 (a) The peak of flood hydrograph due to a 3-h duration isolated storm in a catchment is 270m^3/s. The total depth of rainfall is 5.9 cm. Assuming an average infiltration loss of 0.3cm/h And a constant base flow of 20m^3 estimate the peak of the 3-h unit hydrograph (UH) of this catchment. (10)

(b) If the area of the catchment is 567km^2 determine the base width of the 3-h-unit hydrograph by assuming it to be triangular in shape. (10)

Q2 (a) What is meant by flood rooting through reservoirs? (5)

(b) Describe step by step procedure that you will adopt for flood rooting computations required for reservoirs under "*trial and error method*" (15)

Q3 Write down in detail about the data required to establish a hydrologic forecasting system? (20)

Q4 Discuss in detail about various components of water shed modeling strategy? (20)

Q5 What is meant by artificial recharge of groundwater? Enumerate the different methods which are used for this purpose and describe one of them briefly. (20)

Q6 Why ground water modeling is needed? Write uses of ground water models. (20)

Q7 Mention the basic assumption in the theory of unit hydrograph. Explain step by step the method of construction of unit hydrograph from a storm of unit duration. Mention the sources of error in unit hydrograph construction (20)

Q8 (a) Write down Reynolds transport theorem and where it is used (10)

(b) Discuss in detail energy and momentum principles. (10)