B. Tech. 5th Semester (F) Scheme (Civil)
Examination, December–2018

HYDROLOGY

Paper–CE-311-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *Attempt any **five** questions, selecting at least **one** question from each part. **Question No. 1 is compulsory**. All questions carry equal marks.*

1. Explain the following –

(i) Hyposometric curve

(ii) Forms of precipitation

(iii) Sources of Hydrosocial data in India

(iv) Method of coastal resource precipation

(v) Storage hydrographs and storage recharge.

Part–A

2. A small catchment area 150 hectares received 10cm rainfall in 120 minutes due to storm. At the outlet of catchment, the stream draining the catchment was dry before storm and experienced a run off lasting for 12 hours with an average discharge of 2.00 m^3/Ded. It went dry afterward. Calculate

(i) What is the amount of water not available to run

off due to combined effects of infilteration evaporation and transpiration. 20

(ii) Ratio of runoff to precipitation

3. (a) What are the main characteristics of participation in India ? 10

(b) Describe the methods used to control Reservoir Evaporation. 10

Part-B

4. (a) How to measure infiltration ? 10

(b) Discuss the factors affecting the infiltration capacity of an area. 10

5. (a) Explain the uses and limitations of UH 10

(b) Explain field capacity and permanent wilting point. 10

Part-C

6. (a) Explain the factors affecting the seasonal and annual runoff capacity of a catchment. 10

(b) Describe briefly the intersection fields listed by you. 10

7. Explain aquifer. Also discuss its types and compressibility. 20

Part-D

8. (a) Explain the following – 5×2=10

(i) Perched water table

(ii) Specific yield

(iii) Recharge

(iv) Intrinisic permeability

(v) Bulk pore velocity

(b) A falling head permeability test was conducted over soil sample. The stand pipe had X-sectional area of 1.5 m^2 and water was allowed to fall from 100cm to 50cm in one minute. For a soil sample of 4cm dia and 30cm long, calculate coefficient of permeability. 10

9. A 30 cm dia well is drilled into a confined aquifer of permeability of 45m/day. It has 20m long strainer and drawdown under steady state of pumping is 3.00m with 300m radius of influence.

Calculate –

(i) Yield of the well 10

(ii) Draw neat diagram of the well. 10