

Registration No :

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Total Number of Pages : 01

B.Tech
PECI5401

7th Semester Back Examination 2019-20
WATER RESOURCES ENGINEERING
BRANCH : CIVIL
Time : 3 Hours
Max Marks : 70
Q.CODE : HB261

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

- Q1 Answer the following questions :** **(2 x 10)**
- a) Classify the rainfall depending upon the intensity.
 - b) What is pan coefficient?
 - c) Draw flow rating curve.
 - d) What is IUH?
 - e) State the relation between ERH and DRH.
 - f) Why do you provide river training works?
 - g) State Dicken's formula.
 - h) Define sub critical, critical and super critical flow.
 - i) State the fundamentals of the most economical channel.
 - j) What are Quays and Jetties?
- Q2**
 - a) Discuss the components of hydrologic cycle. **(5)**
 - b) How do you calculate the mean rainfall? **(5)**
- Q3**
 - a) Illustrate the different methods used to measure the stage in a river. **(5)**
 - b) Explain slope area method, used for discharge measurement. **(5)**
- Q4** a) Rainfall of magnitude 3.8 cm and 2.8 cm occurring on two consecutive 4-h durations on a catchment of area 27 km² produced the following hydrograph of flow at the outlet of the catchment. Estimate the rainfall excess and ϕ index. **(5)**
- | | | | | | | | | | | | | | |
|--|----|---|----|----|----|----|----|----|----|----|----|-----|-----|
| Time from start of rainfall (h) | -6 | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 |
| Observed flow(m³/s) | 6 | 5 | 13 | 26 | 21 | 16 | 12 | 9 | 7 | 5 | 5 | 4.5 | 4.5 |
- b)** Explain the procedure of deriving Synthetic unit hydrograph for a catchment by using Snyder's method. **(5)**
- Q5**
 - a) Illustrate the reservoir routing and channel routing method. **(5)**
 - b) Derive the conditions of the most economical and efficient trapezoidal channel. **(5)**
- Q6** Define specific energy. Draw a neat sketch of specific energy curve for a rectangular channel showing all its details. **(10)**
- Q7** Enlist the feature of a port. **(10)**
- Q8 Write short notes on any TWO :** **(5 x 2)**
- a) Current meters used for velocity measurement in channel
 - b) Gradually and rapidly varied flow
 - c) Muskingum routing method