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E-1132

B. E. IIIrd Semester (Main & Re)Examination, December – 2019

WATER RESOURCES ENGG.

Branch : (CE)

Code : BCE- 302

Time : Three Hours] *[Maximum Marks : 60*

Note : Attempt *all* questions from *Section – A four* questions from *Section – B* and *three* questions from *Section – C.*

Section- A : Filling the blanks/MCQ/True, false. 1 × 10 = 10

Section- B : Short answer type questions. 5 × 4 = 20

Section- C : Long/ descriptive answer type questions. 10 × 3 = 30

SECTION – A

1. The Water year in India starts from Ist day of :

(a) January (b) February

(c) May (d) June

(e) September

2. An aquifer confined at the bottom but not at the top is called :

(a) Semi- confined Aquifer (b) Confined Aquifer

(c) Unconfined Aquifer (d) Perched Aquifer

3. The standard Symon's type rainguage has a collective area of dia :

(a) 12.7 cm (b) 10 cm

(c) 5.08 cm (d) 25.4 cm

P. T. O.

4. A hydrograph is a plot of :

(a) Rainfall intensity v/s time
(b) Stream discharge v/s time
(c) Cumulative rainfall v/s time
(d) Cummulative runoff v/s time

5. A hyetograph is a plot of :

(a) Cummulative rainfall v/s time
(b) Rainfall intensity v/s time
(c) Rainfall depth v/s time
(d) Discharge v/s time

6. Evapotranspiration is confined :

(a) To daylight hours
(b) Night time only
(c) Land surface only
(d) None of these

7. A geological formation which is essentially impermeable for flow of water even though it may contain water in its pores is called -

(a) Aquifer
(b) Aquiclude
(c) Aquitard
(d) Aquifuge

8. The percentage of total quantity of water in the world that is saline is about :

(a) 71%
(b) 33%
(c) 97%
(d) 67%

9. Brick lining require expansion joints. T/F

10. Precast C. C. tile lining are slow progress and not suitable for curves. T/F

SECTION – B

1. Describe various zones of underground water. Explain the terms : Aquifer, aquiclude & aquifuge.

2. Describe in brief the advantages and disadvantages of well irrigation over canal irrigation.

3. What do you understand by precipitation ? Explain various types of precipitation.

4. What is meant by 'Crop rotation' ? What are the advantages of crop rotation ? Describe in brief.

5. Describe the concept of hydrologic cycle with the help of a neat sketch. What are the different components of the hydrologic cycle.

6. What is run-off ? What are the factors that affect the run- off from a catchment area ? Describe the methods of computing run- off from a catchment area.

SECTION – C

1. Explain 'water logging'. What are the various causes of water logging ? Describe the adverse effects of water logging. What are the various methods adopted as anti- water logging measures ?

2. Describe 'canal regulation works'. What are the different types of canal regulation works provided ? What are the functions of a canal fall ?

3. Write a short note on 'synthetic Unit Hydrograph' How will you derive the synthetic unit hydrograph from a number of unit hydrograph ? Illustrate the method with suitable example in a tabular form.

4. What do you understand by regime channel ? Explain the initial regime and final regime of a channel. Using Lacey's theory, design an irrigation channel for the following data :

   Discharge, Q = 50 cumecs

   Lacey's silt factor, f = 1.0

   Trapezoidal section side slop = 0.5 : 1

5. Describe an expression for the yield of tube wells for the case of an un- confined aquifer. A 30cm well fully penetrates of an un- confined aquifer o 25m depth. When a discharge of 2100 liters/minute was being pumped for a long time, observations wells at radial distances of 30m and 90m indicated draw down of 5m and 4m respectively. Estimate the coefficient of permeability and transmissibility of aquifer.
