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Question Paper Code : 71597

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Seventh Semester

Civil Engineering

CE 6703 — WATER RESOURCES AND IRRIGATION ENGINEERING

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by duty and Delta?
2. What is multipurpose reservoir?
3. Give the meaning of consumptive and non-consumptive use of water.
4. Define water budget.
5. What are the few factors influencing the evapotranspiration?
6. What are different methods of sub surface irrigation?
7. What are essential components of a drip irrigation?
8. What are the methods of estimating the consumptive use?
9. Why canal drops are necessary in canal irrigation?
10. What is aqueduct? Where is it placed in a cross drainage work?

PART B — (5 × 16 = 80 marks)

11. (a) (i) State the factors to be considered in deciding capacity of reservoirs and explain the salient point in each factor.
(ii) The monthly flows of a stream over the direct period on record are given in tabular form below.

| Month | Monthly flows expressed as volume in M ³ |
|-----------|--|
| January | 5000 |
| February | 3250 |
| March | 6000 |
| April | 2250 |
| May | 1500 |
| June | 1750 |
| July | 1500 |
| August | 1750 |
| September | 2250 |
| October | 2250 |
| November | 6000 |
| December | 7250 |

Assuming each month of 30 days, estimate maximum possible uniform draw off from stream for water supply in a township. Find out the capacity of the reservoir required to achieve the uniform draw off using cumulative flow diagram.

Or

- (b) What is multipurpose project? What are functional requirements in multipurpose projects? How to estimate requirement of water for irrigation and domestic purposes?
12. (a) (i) Describe briefly the necessity and importance of irrigation water in our country.
- (ii) What are the quality criteria for irrigation purposes? Describe the chemical constituents, which affect the suitability of water for irrigation?

Or

- (b) Briefly state the various steps needed for planning an irrigation project. List the various objectives of water resources development in the context of the lesser developed countries.

13. (a) What is the water requirement of crops? What are the factors affecting duty? What are different ways in which duty can be expressed? A reservoir with a live storage capacity of 300 million cubic meters is able to irrigate an ayacut of 40000 hectares with 2 fillings each year. The crop season is 120 days. What is the duty?

Or

- (b) Name any two methods used for estimating consumptive use of water for a particular crop at a particular place. Explain in details the one which is most widely used in your region, and the reasons for preferring that particular method.
14. (a) Briefly describe and discuss the various methods of lining canals. Give a cross section of lined canals.

Or

- (b) What are the purpose of cross drainage work? What are the various types of cross drainage works? Describe the use of siphon in cross drainage work.
15. (a) What are the different methods of surface irrigation? Describe the methods point out the prerequisites for adoption of this method.

Or

- (b) What are the essential components of a drip irrigation systems? Draw a layout plan of the drip irrigation system.