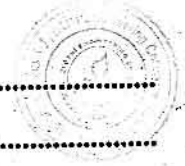


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(Pages 2)

Name.....

Reg. No.....



**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2012**

CE 04 606—HYDROLOGY AND IRRIGATION ENGINEERING

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

1. Write the water balance equation and explain.
2. Define irrigation efficiencies.
3. Explain intensity duration frequency analysis of rainfall data.
4. Write briefly about flood control works.
5. What is meant by flood plain zoning?
6. What are the different ways in which the irrigation canals can be aligned?
7. What is a head work? How it is classified?
8. What are the ill effects of water logging?

(8 × 5 = 40 marks)

Part B

Answer all questions, each question carries 15 marks.

9. (a) (i) Explain different types of self recording rain gauges.
- (ii) The normal annual rainfall depths recorded at 5 rain gauge stations are 910, 1070, 1410, 810, and 500 mm respectively. Determine the optimum number of rain gauge stations to be established in the drainage basin if it is desired to limit the error in the mean value of rainfall to 10%.

Or

- (b) The ordinates of 2 hr. unit hydrograph are given in table. Using S hydrograph derive the ordinates of 6 hr. unit hydrograph for the same catchment

Time (hr.)	0	2	4	6	8	10	12	14	16	18	20	22	0
Ordinates of unit hydrograph (cumecs)	0	25	100	160	200	170	110	70	30	20	8	0	0

Turn over

10. (a) (i) Write about reservoir sedimentation. What are the methods of controlling reservoir sedimentation ?
- (ii) Write notes on :
- (a) Flood forecasting.
 - (b) Flood warning systems.
 - (c) Flood control works.

Or

- (b) (i) Explain different methods for estimating peak discharge.
- (ii) Explain the classification of reservoirs, and what are the investigations carried out for reservoir planning.
11. (a) (i) Explain the variation of duty with the place of measurement.
- (ii) What are the methods of improving duty ?

Or

- (b) (i) Explain the classification of important crops and crop seasons.
- (ii) Draw the layout of a diversion head works and explain each component.
12. (a) (i) Draw the cross section of a canal and explain the component parts.
- (ii) Explain the layout of a tile drain system.

Or

- (b) (i) Design a channel section by Kennedy's theory given the following data :—
- Discharge $Q = 28 \text{ cumecs}$; Kutter's $N = 0.0225$; critical velocity ratio $m = 1$;
- Side slope $\frac{1}{2} : 1$; B/D ratio = 7.6.
- Find the bed slope of the channel.
- (ii) Write notes on :
- (a) Maintenance of irrigation channels.
 - (b) Types of canal lining.

(4 × 15 = 60 marks)