

C 61446

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Name.....

Reg. No.....

**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
APRIL 2014**

(2009 Scheme)

**CE/PTCE 09 601—HYDROLOGY AND IRRIGATION ENGINEERING
(Regular/Supplementary/Improvement)**

Time : Three Hours

Maximum : 70 Marks

Part A

*Answer all questions.
Each question carries 2 marks.*

1. Define hyetograph with the help of diagram.
2. Differentiate flow irrigation and lift irrigation.
3. What is meant by balancing depth in a canal ?
4. What are the requirements of canal outlets ?
5. What is flood plain zoning ?

(5 × 2 = 10 marks)

Part B

*Answer any four questions.
Each question carries 5 marks.*

6. Explain double mass curve technique for testing the consistency of rainfall data.
7. Describe briefly about sprinkler irrigation and drift irrigation.
8. What are the measures adopted for preventing water logging ?
9. Discuss briefly about land drainage
10. Explain the method for design of open drains.
11. Write about guide banks.

(4 × 5 = 20 marks)

Turn over

Part C

Answer all questions.
Each question carries 10 marks.

12. (A) 6 hr unit hydrograph of a catchment are given in table. Derive the 9hr unit hydrograph for the same catchment using S hydrograph :

time (hr)	...	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	
ordinates of 6 hr unit hydrograph	}	...	0	9	20	35	49	43	35	28	22	17	12	9	6	3	0

Or

- (B) (i) Explain Depth Area Duration curves. How it is prepared ?
(ii) What are the applications of unit hydrograph and explain the procedure of deriving unit hydrograph form storm hydrograph ordinates.
13. (A) (i) Explain different types of irrigation efficiencies.
(ii) A field channel has a culturable commanded area of 2000 *ha*. The intensity of irrigation for gram is 30% and for wheat is 50%. Gram has a kor period of 18 days and kor depth of 12 cm while wheat has kor period of 15 days and kor depth of 15 cm., calculate the discharge of the field channel.

Or

- (B) (i) Differentiate between head regulator and cross regulator.
(ii) Explain the process of reservoir sedimentation. What are the methods of controlling sedimentation ?
14. (A) Draw the cross-section of a canal and explain it's component parts.

Or

- (B) Using Lacey's silt theory, design an irrigation channel for the following data :—

Discharge $Q = 50$ cumecs ;

Silt factor $f = 1$;

Side slopes $1/2 H : 1V$

15. (A) Write notes on :

- (i) Groynes.
- (ii) Artificial cut-offs
- (iii) Pitched islands.

Or

(B) Explain the principles of flood control. What are the methods adopted for flood control ?

(4 × 10 = 40 marks)