C 31991 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION JUNE 2007

CE 04 606—HYDROLOGY AND IRRIGATION ENGINEERING

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Assume any missing data suitably.

I. (a) Briefly explain "Water Resources" in India.

(b) What are different forms of Precipitation.

(c) How do you estimate Peak flow by rational method ?

(d) Write a note on reservoir sedimentation.

(e) What are the advantages of drip irregation ?

(f) Explain the functions of a silt excluder.

(g) What are the benifits of drainage ?

(h) Write a note on losses in irregation channels.

(8 × 5 = 40 marks)

II. A. (a) Explain orographic precipitation.

(b) How do you test the consistency of a rainfall data ?

(c) Explain any *two* methods of base flow separation with a neat diagram.

(15 marks)

Or

B. (a) Write a note on rainfall-run-off relation. (5 marks)

(b) Ordinate of 12 HR UH are given below. Compute 6 HR UH by S curve method :

Time (Hrs.)	0	6	12	18	24	30	36	42	48
6 HR UH (Cumecs)	0	4	8	16	19	12	8	4	1

(10 marks)

III. A. (a) Define "Peak flood flow" and "Return Period". (5 marks)

(b) The annual rainfall distribution during 75 years of record is given below :

Rainfall range		*No. of years*
< 15 cm	...	5
15 – 24 cm	...	12
25 – 34 cm	...	18
35 – 44 cm	...	30
≥ 45 cm	...	10

Turn

Determine :

(i) Probability of having rainfall in excess of 45 cm. in any one year.

(ii) Probability of rainfall exceeding 45 cm in three successive years.

(10 marks)

Or

B. (a) Explain any *two* River training works. (5 marks)

(b) Write a note on flood control by reservoir regulation. (5 marks)

(c) Explain step by step method of estimation of flood by UH method. (5 marks)

IV. A. (a) What are the advantages of irrigation ? (5 marks)

(b) Explain Khoslas Theory. (5 marks)

(c) Find the delta for a crop, if the duty for a base period of 110 days is (i) 800 ha/cumec ; (ii) 1400 ha/cumec.

(5 marks)

Or

B. (a) Write a note on multipurpose projects. (5 marks)

(b) Define water conveyance efficiency and water application efficiency. (5 marks)

(c) With a neat sketch, explain component parts diversion Headwork. (5 marks)

V. A. (a) What are the functions of a Berm in an irrigation canal ? (5 marks)

(b) Explain Lacey's regime theory. Define initial regime and final regime. Give Lacey's regime equations.

(10 marks)

Or

B. (a) Compare the Kennedy's and Lacey's theory with reference to design of irrigation canal.

(10 marks)

(b) Write a note on water logging. (5 marks)

[4 × 15 = 60 marks]