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Name..................................

Reg. No..............................

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2007

CE 04 606 – HYDROLOGY AND IRRIGATION ENGINEERING

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

Assume any missing data suitably.

I. (a) Explain the role of Hydrology in Engineering.

   (b) What are the methods that are commonly used to ultimate average precipitation in a catchment ?

   (c) Write a note on flood control works.

   (d) Distinguish between levels and flood bank.

   (e) What are the advantages of lift irrigation ?

   (f) Explain the function of silt extractor.

   (g) What are the role of beam in a canal ?

   (h) What are the advantages of Lining ?

   (8 × 5 = 40 marks)

II. A. (a) Explain convective precipitation.

   (b) What do you understand by double Man Curve.

   (c) Rainfall data for 5 stations are shown below. If the error is to be limited to 8%, find the additional rain gauges required.

Station	A	B	C	D	E
Rainfall (mm)	100	125	150	75	50

   (3 × 5 = 15 marks)

Or

B. (a) Draw a neat diagram of flood hydrograph and mark rising limb, Peak, Inflexion font and Recision Limb.

   (b) Ordinates of 3 HR unit hydrograph are given below :

   Derive the ordinates of 6 HR OH :

Time (HR)	0	3	6	9	12	15	18	21	24
Ordinates of 3 HR OH cume cs	0	1.5	5.6	9.2	15.0	10.5	5.6	2.3	1.2

   (5 + 10 = 15 marks)

Turn over

III. A. (a) Define Standard project flood and return period.

   (b) Find the values of C and n in a catchment using flood formula $Q = C A^n$ with the following data :

A (Km²)	5	10	40	100	250
Q (cumec)	125	200	400	500	800

   (5 + 10 = 15 marks)

Or

   B. (a) What are the objectives of River training works.

   (b) Explain any *one* method of flood control.

   (c) How do you select the site for a reservoir ?

   (3 × 5 = 15 marks)

IV. A. (a) What are the benefits of Irrigation ?

   (b) Define Duty and Delta.

   (c) Explain Khorlas Theory.

Or

   B. (a) What are the different crop seasons in India ?

   (b) What are the advantage of sprinkle irrigation ?

   (c) With a neat sketch explain the functions of Divide wall and fish ladder.

   (3 × 5 = 15 marks)

V. A. (a) What are the functions free board in an irrigation canal. How do you fix free board ?

   (b) Compare Kennedy and Lacey regime theory.

Or

   B. (a) What are the disadvantages of waterlogging ? How do you prevent water logging ?

   (b) An irrigation canal has to carry a discharge of 1.5 cumecs. Assuming $n = 0023$ and $\frac{B}{D} = 6.0$, Design Irrigation canal.

   (5 + 10 = 15 marks)

   [4 × 15 = 60 marks]