CE - 8047

B.E. VIII Semester **Examination, June 2015**

Advance Water Resources Engineering Elective-II

Time: Three Hours Maximum Marks: 70

Note: i) Attempt any five questions.

ii) All full questions carry equal marks.

1 . a) In a basin six rain gauge stations are installed, the annual rainfall recorded in as under. 7

Station	A	B	C	D	E	F
Rainfall (cm)	40	50	30	55	52	68

For 10% error in estimation of mean rainfall, calculate optimum no of rain gauge stations in the basin, b) Explain the method of double mass curve and its applications. 7

Or

2. Write short notes on any two: 14

i) PMP

ii) Risk analysis

iii) Depth area duration analysis

3. The storage in a stream reach has been studied and x and k values are 0.28 and 1.5 days. If the inflow hydrograph in the stream reach as the flood starts coming in and passes is given, compute the out flow hydrograph. 14

Time(hrs)	0	6	12	18	24	30
Inflow mVsec	35	50	90	130	160	140

Or

4. Write short notes on any two: 14

i) ARIMA ii) Flood management iii) Flood routing through reservoirs.

5. Describe simplex method of optimisation and its application in water resource management. 14

Or

6. How linear programming is useful in water resources management, discuss with example. 14

7. A multipurpose project has a total cost of240 millions rupees, for the data given below, calculate allocations to each project purpose, by following methods. 14

a) Remaining benefits method

b) Alternative justifiable expenditure method

Item	Flood control	Power generation	Irrigation
1. Separable cost	Rs.32 million	Rs. 88 million	Rs. 72 million
2. Estimated benefits	Rs. 40 million	Rs. 138 million	Rs. 112 million
3. Alternative single purpose cost	Rs.47 million	Rs. 104 million	Rs. 102 million

Or

8. Describe the dynamic programming method, its applicationand limitations. 14

9. Explain network methods, their applications and limitations. 14

Or

10. Write short notes on any two: 14

i) Project optimality analysis

ii) Decision making methods

iii) Network updating.