Total No. of Questions : 8] SEAT No. :

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[4860]-1046
M.E. (Civil) (WREE)
PLANNING & MANAGEMENT OF WATER RESOURCES
(2013 Credit Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer any FIVE questions from all the questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Write the objectives and social goals of water resources planning and management. **[4]**

b) Elaborate the non reversibility constraint in the water resources planning and management. **[6]**

Q2) a) Write the five feasibility tests for any water resources project. **[5]**

b) Explain any 'Single- Source Multipurpose Water Resource System' with suitable example. **[5]**

Q3) a) Write a note on trap efficiency. **[4]**

b) Define Reliability of a water resource system. Explain any one method of Reliability analysis. **[6]**

Q4) a) Explain in detail how the conjunctive use of surface and ground water affects on the planning and management of water resources. **[5]**

b) What is the equivalent present worth about 10% interest of 3 investments of Rs. 60,00,000 one made now. One made about end of third year and one made last at the end of 10^{th} year from now. **[5]**

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Q5) a) Enlist the characteristics and functions of a reservoir which is specifically constructed for water supply systems. **[6]**

b) How the Demand for drinking water and for navigational purposes is decided? Comment on the current status of these demands of your state?**[4]**

Q6) a) Write a note on Resilience for post-disaster response and recovery.**[5]**

b) Enlist different uncertainties in water resources systems and explain any one in detail. **[5]**

Q7) a) Write a note on 'Ground water evaluation'. **[4]**

b) Estimate the six types of benefits for different purposes in cost benefit analysis of water resources. **[6]**

Q8) a) What is 'Inter Basin Water Transfer', enumerate it with suitable example.**[4]**

b) In a lift irrigation project a choice is to be made between two pumps, with details given in the following table. Which of these two pumps is economically superior At an interest rate of 8 %? Use Present Worth Method and take period of analysis as 30 years. **[6]**

Pump	Capital Cost	Annual Cost	Annual Benefit	Life	Salvage Value
(1)	(2)	(3)	(4)	(5)	(6)
A	40,000	6,000	15,000	10	6,000
B	60,000	5,000	16,000	15	8,000