Total No. of Questions :12]

SEAT No. :

P4528

[Total No. of Pages :3

[4860] - 611
M.E. (Civil) (WREE)
d-PLANNING AND MANAGEMENT OF WATER RESOURCES
(2012 Course) (Semester-I) (Elective-II) (501605)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Figures to the right indicate full marks.***
2) ***Draw neat sketches wherever necessary .***
3) ***Assume suitable data, if necessary.***
4) ***Use of calculators allowed.***
5) ***All questions are compulsory.***
6) ***Answers to the two sections must be written separately.***

SECTION-I

Q1) a) What are the strategic goals and objectives of planning and management of water resources and Explain how its performance is measured. **[8]**

b) How does society gets benefited directly or indirectly due to planning and management of water resources. **[10]**

OR

Q2) a) How does integrated water resource management (IWRM) play important role in managing water resources for developing country like INDIA.**[10]**

b) What are needs and opportunities in planning and management of water resources? **[8]**

Q3) a) Comment on spatial and temporal characteristics of water resources. How does it affect management of water resources in our country. **[8]**

b) Comment on constraints like non-reversibility and planning region and horizon. for water resources development. **[8]**

OR

Q4) a) Why is statewide water resources planning of water resources needed?**[8]**

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b) How does state legislation and data gathering play important role in water resources management? **[8]**

Q5) a) Explain various methods of apportionment of totalcost of a multipurpose reservoir. **[8]**

b) Explain how financial analysis of water resources projects play important role in management of water resources. **[8]**

OR

Q6) A multipurpose project has total cost of 240 million rupees. For the data given below, calculate the allocations to each project purpose, by the following methods. **[16]**

a) Remaining benefits method,

b) Alternative justifiable expenditure method.

Item	Flood control	Power generation	Irrigation
Separable cost	Rs 32 million	Rs 88 million	Rs 72 million
Estimated benefits	Rs 40 million	Rs 138 million	Rs 112 million
Alternate single purpose cost	Rs 47 million	Rs 104 million	Rs 101 million

SECTION-II

Q7) a) How reservoir sedimentation measured. What are methods to control sedimentation? What are the methods of removing sediments from the reservoir? **[10]**

b) What are the characteristics and functions of reservoir? State conflict among uses of reservoir water. **[8]**

OR

Q8) a) 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. **[8]**

Pump	Capital Cost	Annual Cost	Annual Benifit	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

b) How do you carry out reservoir operation studies? Explain the effect on river regime. **[10]**

Q9) a) What are effects of other users, other waater bodies and environment on the aquifer. **[8]**

b) Explain Jacob's method for unsteady flow towards well. **[8]**

OR

Q10)a) Explain in detail how the conjunctive use of surface and ground water affects on the planning and management of water resources. **[8]**

b) Enlist methods to improve the Ground water content to develop the ground water resources in Maharashtra state. **[8]**

Q11)a) Explain discounting techniques. **[8]**

b) What are the basic steps in the benefit-cost analysis process and how measuring costs and benefits is carried out. **[8]**

OR

Q12)a) What are the limitations of benefit-cost analysis. **[8]**

b) What is 'Inter Basin Water Transfer', enumerate it with suitable example. What is the importance of inter basin water transfer in managing floods and water challenges in drought prone areas. **[8]**

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