Total No. of Questions : 12]

SEAT No. :

P4559

[Total No. of Pages :3

[4760] - 84
M.E. (Civil WREE)
PLANNING AND MANAGEMENT OF WATER RESOURCES
(501605) (2008 Course) (Semester - I) (Elective - II)

Time : 3Hours] *[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 objectives of planning and management of water resources and Explain how national development is related with this planning and management of water resources project. **[10]**

b) How does Planning and management of water resources play role in achieving societal goals? **[8]**

OR

Q2) a) What is the importance of integrated water resource management and state the challenges to be faced while managing water resources for developing country. **[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) Explain the constraints for water resources development. **[8]**

OR

P.T.O.

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

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

Q5) a) How the demand for irrigation water supply purposes is decided? Comment on the current status of demands of your state with respect to demand for drinking water; irrigation, hydropower; navigation. **[8]**

b) Explain the different uncertainties in water resources systems. **[8]**

OR

Q6) a) New equipment is available for Rs. 200000/- and will have an expected salvage value of Rs. 70,000/- at the end of its useful life 12 years. The OMR costs are expected to be Rs. 9000/-. A used but reconditioned piece of the same equipment having OMR costs Rs. 11000/-yr, an estimated life of 7 years, and salvage value of Rs. 10000/- is available for Rs. 110000/-. If the prevailing interest rate is 10 percent and expected average inflation rate over next 10 yr is 5 percent, compare the two alternatives: **[6]**

i) Considering the inflation and

ii) neglecting the effect of inflation.

b) Write the PCB Strategies for protection of water resources. Explain tangible and intangible benefits in detail. **[10]**

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) The estimated annual demand of water of a town is 900 ML with a standard deviation of 200 ML. The town's water supply system has an estimated mean capacity of 1200 ML with a standard deviation of 100 ML. Assuming that both the supply and demand are independent random normal variables, find the reliability or the probability of supply exceeding the demand; the risk; i.e. the probability of the system not meeting the demand; safety margin; and safety factor. Use following table of random normal variables for 'z'. **[8]**

z	α	z	α
1.1	0.8643	1.3	0.9032
1.2	0.8849	1.4	0.9192

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 water bodies and environment on the aquifer. **[8]**

b) Explain pumping out test and recuperation test. **[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 of benefits and costs to present values. **[8]**

b) What are the basic steps in the benfit-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]**