

[5060]-549

M.E. (Civil)

(WATER RESOURCES AND ENVIRONMENTAL ENGG)

Planning and Management of Water Resources

(2013 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) State the objectives of water resource planning and management. Justify need of planning and management of water resources. [6]

b) Explain the system components of water resources planning and management and state various approaches of planning and management of water resources. [4]

Q2) a) Comment on spatial and temporal characteristics of water resources. [5]

b) Explain constraints like non reversibility for development of water resources. [5]

Q3) a) Explain various cost benefit study methods for single and multipurpose projects. [6]

b) Comment on repayment of cost in multipurpose project. [4]

Q4) a) How the priority is fixed as per Maharashtra water act for various purposes. [6]

b) What are various plans implanted for controlling flood. [4]

P.T.O.

- Q5) a)** How reservoir sedimentation control is playing important role in water management. **[4]**
- b)** Explain any one water doctrine to avoid conflict amongst users. **[6]**
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- Q6) a)** How is the impact of climate change on river flow regimes related to the impact on mean annual runoff. **[4]**
- b)** Explain vulnerability assessment of water supply in agricultural reservoir utilizing probability distribution and reliability analysis methods. **[6]**
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- Q7) a)** Write a note on center for ground water evaluation and management. **[4]**
- b)** Explain how conjunctive use of surface and ground water play Important role in water management. **[6]**
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- Q8) a)** State discounting techniques and explain any one. **[4]**
- b)** Explain the importance of river basin planning and management. **[6]**

