

# Unit 14 - week 12

**Course outline**

How does an NPTEL online course work?

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- Lecture 58 : Economics of Water Supply Systems
- Lecture 59 : Capital and Operational Cost of Water Supply Systems
- Lecture 60 : Pricing Waters
- Lecture 61 : Pricing Waters (Contd.)
- Lecture 62 : Case studies and Practice Problem on Water Pricing
- Lecture Material
- Quiz : Assignment 12
- Week 12 Feedback Form

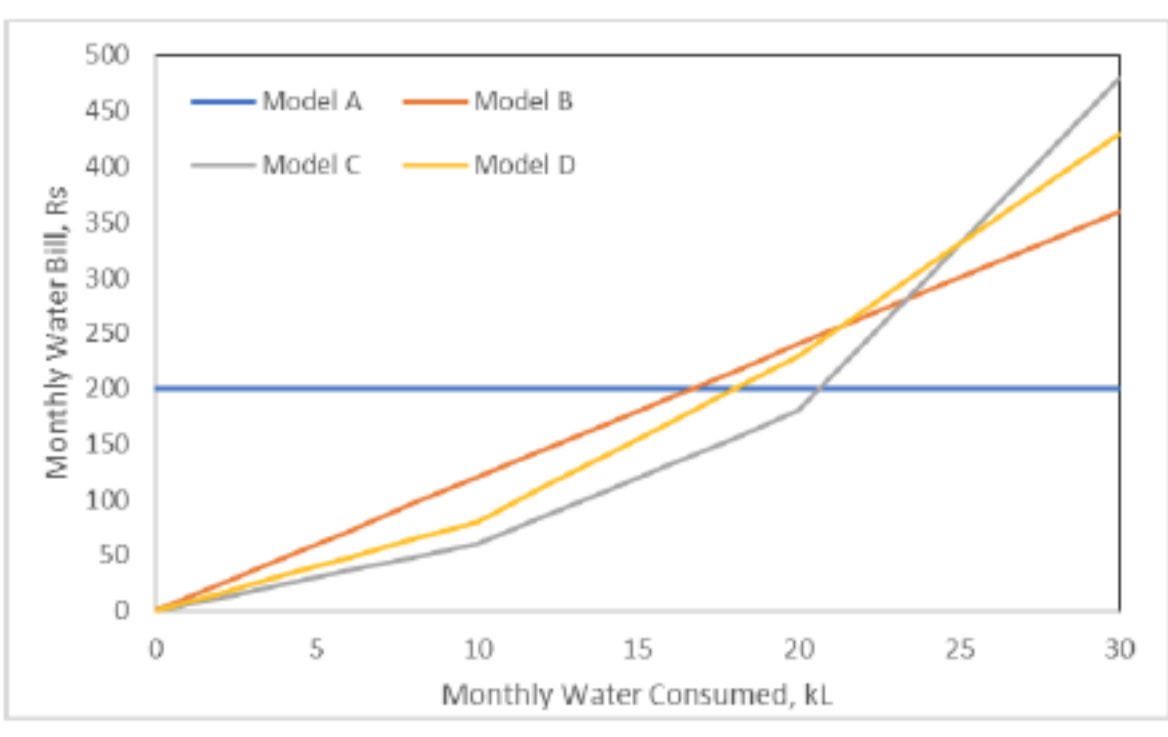
**Detailed Assignment Solution**

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## Assignment 12

The due date for submitting this assignment has passed. **Due on 2020-04-22, 23:59 IST.**  
 As per our records you have not submitted this assignment.

- 1) The value associated with the water supplied to community through piped distribution system is regarded as:
- a) Direct Use Value
  - b) Indirect Use Value
  - c) Non-use value
  - d) Option Value
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 a.
- 2) Which of these cost components of water is not included in full economic cost of water?
- a) Opportunity Cost
  - b) Economic Externalities
  - c) Environmental Externalities
  - d) Supply Cost (Capital and O&M)
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c.
- 3) A city consuming 12 MLD water shows 10% reduction in water consumption when unit price of water was raised from 10 Rs/kL to 12 Rs/kL. The price elasticity of the water demand would be:
- a) -0.5
  - b) +0.5
  - c) -2.0
  - d) +2.0
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 a.
- 4) Which of these cost components is recurring?
- a) Design cost of water treatment plant and water distribution system
  - b) Energy (power) cost for supply system operation
  - c) Construction and set-up of infrastructure
  - d) All of the listed options
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 b.
- 5) Usually, the largest share of operation and maintenance cost for water supply systems in India is contributed from:
- a) Power cost (electricity bills) and manpower cost (salaries for managers, operators, and labours)
  - b) Infrastructure expansion, enhancement and augmentation.
  - c) Consumables cost (chemicals and other consumable materials)
  - d) Cost of minor repairs
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 a.
- 6) Which of these costs is not included in OpEx?
- a) Small maintenance and repair cost
  - b) Cost of energy, fuel, and consumable chemicals and materials
  - c) Manpower and labour cost for supply system operation
  - d) Large investments in asset renewal, replacement and rehabilitation
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d.
- 7) Which of the following is a method/approach for the cost optimization for the water supply systems?
- a) Least-Cost Analysis among alternatives
  - b) Optimizing pumping requirements using computational tools.
  - c) Efficient manpower utilization to prevent over-staffing
  - d) All of the listed options
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d.
- 8) Objective of water pricing (collecting water charges from users) is:
- a) To raise revenues for public water supply infrastructure and operations
  - b) To encourage more responsible water uses and discourage wasteful uses.
  - c) Both of the listed options
  - d) None of the listed options
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c.
- 9) The major advantage of flat tariff model is:
- a) It sends a strong signal for water conservation
  - b) It can be adopted even in the absence of metering system
  - c) Poor households get cheaper water than higher income group households
  - d) All of the listed options
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 b.
- 10) Two part water tariff models usually have:
- a) A part of water consumption charged at fixed rate while remain consumption charged at volumetric uniform rate
  - b) Two blocks in an increasing block tariff while first block charging a lower tariff while second block charging higher tariff
  - c) A fixed charge component for recovery of the fixed costs of production and administration plus a variable charge depending on the volume of water consumed
  - d) Two different rates charged in peak and off-peak seasons
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c.
- 11) Among the models shown here (depicting water consumption based monthly water bill), identify the model which sends the strongest signal for water conservation to its consumers:
- a) Model A
  - b) Model B
  - c) Model C
  - d) Model D
- 
- a.  
 b.  
 c.  
 d.
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c.
- 12) The cost of operation and maintenance of a water supply system serving 1.9 lacks household in a city was worked out as Rs 4.8 Crore per month. The utility is using a uniform tariff model to recover the entire O&M cost. If a household consuming 25 m<sup>3</sup> water in month pays 300 Rs water bill in the month, what would be the tariff under a uniform tariff structure (in Rs /m<sup>3</sup>):
- 
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 (Type: Range) 11,13
- 13) In the case of city mentioned in Question No. 12, the average water consumption per household is (in m<sup>3</sup>/house):
- 
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 (Type: Range) 20,22
- 14) A city is charging households for water consumption based on a 4-slab increasing block tariff structure with tariffs as Rs 7/kL, Rs 15/kL, Rs 25/kL and Rs 40/kL for the consumption blocks of 0-8 kL/month, 8-16 kL/month, 16-25 kL/month, and >25 kL/month, respectively, monthly water bill for a household consuming 30 kL water in a month would be (in Rs):
- 
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 (Type: Range) 580,620
- 15) For the case mentioned in Question No. 14, if a consumer (household) is willing to pay maximum 500 Rs as monthly water bill, what should be the maximum monthly water consumption for the household (in kL/month):
- 
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 (Type: Range) 27,28