

**SV-40**

Total No. of Pages : 3

Seat No.	
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**T.E. (Civil) (Part-III) (Semester - V)(Revised)**

**Examination, May - 2019**

**ENVIRONMENTAL ENGINEERING-I**

**Sub. Code : 66237**

**Day and Date : Friday, 03 - 05 - 2019.**

**Total Marks : 100**

**Time : 2.30 p.m. to 5.30 p.m.**

- Instructions :
- 1) All questions are compulsory.
  - 2) Assume suitable data wherever necessary and mention it.
  - 3) Figures to the right indicate full marks.

**SECTION-I**

**Q1) Answer any three of following .**

**[3×6=18]**

- a) Explain the basis on which water source is selected for water supply?
- b) Write note on population forecasting.
- c) Discuss the fluctuation in water demand with respect to graph for.
  - i) Daily consumption
  - ii) Monthly consumption
  - iii) Seasonal consumption
- d) Mention the breakup of domestic water utilisation in liters in Indian condition and also comment on effect of various factors on consumption of water.
- e) Explain the factors to be considered while selecting suitable site for intake works.

**Q2) a) Find the dimensions of rectangular sedimentation basin for the following data. [8]**

Volume of treated water -3 MLD

Detention time -4 hrs

Velocity of flow - 10cm/min

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SV-40

- b) Explain the process of tube and plate settler.

[8]

OR

Explain the theory of coagulation and flocculation.

[8]

- Q3) a) Explain the need of water softening. Explain any one water softening method in detail.

[8]

- b) Explain the operation and head loss development for flow through rapid sand filter.

[8]

OR

Explain forms of chlorination.

[8]

### SECTION - II

- Q4) a) Explain the mass curve method of the determination of capacity of service reservoir.

[6]

- b) Mention the various pipes used for transmission of water, and explain the factors to be considered for the selection of suitable pipe material for water supply scheme.

[6]

- c) Explain the necessity and design considerations of thrust block.

[5]

OR

Explain the methods of corrosion control.

[5]

- Q5) a) Explain with neat sketches the methods of water distribution.

[6]

- b) Determine the diameter of an equivalent pipe of 1000 m length using Hazen-williams formula for pipe network given below.

[6]

Pipe	Length(m)	Diameter(mm)
AB	450	350
BC	350	300
CD	400	250

**SV-40**

- c) Explain the Hardy-Cross method of network analysis.

[6]

OR

Explain any two soft wares used for network analysis.

[6]

**Q6)** Write short notes on any three.

[15]

- a) Air relief and Non return valve
- b) Methods of leak detection
- c) Service connection
- d) Green building materials.

