**SL-246**

Total No. of Pages : 3

| Seat No. | |
|---|---|

# T.E. (Civil) (Semester-V) (Revised) Examination, May - 2017
# ENVIRONMENTAL ENGINEERING-I
## Sub. Code : 66237

**Day and Date : Wednesday, 17-05-2017** **Total Marks : 100**
**Time : 10.00 a.m. to 1.00 p.m.**

**Instructions :** **1)** **All questions are compulsory.**
**2)** **Assume and mention data if necessary.**

## SECTION-I

**Q1)** Answer ANY THREE of following- **[18]**

a) Discuss quality of drinking water with respect to quality parameters.

b) Discuss various factors on which demand of water is based on.

c) State any six acceptable water quality parameters as per BIS.

d) Mention various methods of population forecasting and explain any one.

e) Discuss the fluctuation in water demand with respect to graph for

i) Daily consumption

ii) Monthly consumption

iii) Seasonal consumption

**Q2)** a) Explain the necessity of water treatment. Also mention flow of water treatment. **[6]**

b) What is length of cascade aerator if its capacity is $40m^3/hr$ per 1m length of step? Total flow is $900m^3/hr$. What is total surface area of cascade if width to height ratio of steps is 1:1? **[6]**

OR

b) Explain the theory of sedimentation and types of settling. **[6]**

c) Explain the practical process of finding dosage of coagulant. **[4]**

***P.T.O.***

**Q3)** a) Explain detailed filtration process of rapid sand filter with cross section. **[6]**

b) Discuss the forms of chlorination and practices in India. **[6]**

OR

b) Discuss methods of disinfection. Explain break point chlorination in detail. **[6]**

c) Explain the negative head loss phenomenon in filtration process in rapid sand filter. **[4]**

## SECTION-II

**Q4)** a) Compare the suitability of CI pipe with Concrete pipes. **[5]**

b) Using analytical method determine the balancing storage of service reservoir from following data.

Population 5 lakh, average water demand 150 lpcd, water is supplied to the reservoir by constant rate pumping. **[8]**

| Time | | lpcd |
|---|---|---|
| 5 am to 9 am | - | 60 |
| 9 am to 1 pm | - | 30 |
| 1pm to 5 pm | - | 20 |
| 5 pm to 9 pm | - | 35 |
| 9 pm to 5 am | - | 05 |

c) What are the forces acting on pressure pipes? Explain with formulae. **[5]**

OR

c) Explain the methods of corrosion control. **[5]**

**Q5)** a) With neat sketches explain the methods of water distribution. **[6]**

b) Find the equivalent diameter of 1200 m length pipe for following system of pipes. **[4]**

| Pipe | Length (m) | Diameter (mm) |
|---|---|---|
| PQ | 300 | 350 |
| QR | 350 | 300 |
| RS | 400 | 250 |

c) Explain the Hardy-Cross method of network analysis. **[6]**

OR

c) Wht are the various software's available for network analysis? Explain in short. **[6]**

**Q6)** a) Explain the methods of leak detection for water distribution system. **[6]**

b) What is green building? What is the role of energy efficient materials in it? **[4]**

c) Explain with neat sketches working and function of sluice valve and Air relief valve. **[6]**

OR

c) Draw a neat sketch of service connection and mention the function of various components. **[6]**