

Seat  
No.

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CAI1331

**Environmental Engineering - I**  
**(New) (1100)**

**P. Pages : 2**

**Time : Three Hours**

**Max. Marks : 100**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Use of non programmable calculator is allowed.
5. Make necessary assumptions wherever necessary.
6. Solve **two** question from each unit.

**UNIT - I**

1. Write an explanatory note on importance and scope of water purification. **10**
2. Estimate fire demand of a city having a population of 40000. **10**
3. a) Describe suitability of arithmetic mean method and geometric mean method of population forecast. **5**  
b) How design period of a water supply system is decided ? **5**

**UNIT - II**

4. a) Explain purpose of following structures : **4**  
i) Jack well. ii) Intake well.  
iii) Dug well. iv) Pump house.  
b) Write a note on criteria of site selection for a river intake. **6**
5. What are the common types of valves used in water supply system ? **10**
6. a) What is a pressure break tank ? **5**  
b) What is a master balancing tank ? **5**

**UNIT - III**

7. Enlist major physical, chemical and biological characteristics of water and give their acceptable limits and cause of rejection limits as per W.H.O. standards. 10
8. What is the source of hardness in water ? What are its ill effects ? What is permissible limit ? 10
9. Describe the principle and procedure of determination of MPN value. 10

**UNIT - IV**

10. Compare the general treatment technology required for surface and ground water. 10
11. What is Stoke's law of sedimentation ? Write its equation, assumption and applications. 10
12. Explain surface over flow rate and Weir Loading concept for sedimentation tank ? 10

**UNIT - V**

13. a) What are the characteristic requirements of sand to be used in filters ? 5
- b) Explain back washing of filters. 5
14. Compare design, operation and applications of slow sand filters and rapid sand filters. 10
15. a) Why super chlorination is done ? 5
- b) What are the bad effects of chlorination ? 5

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