



**Environmental Engineering - I**  
**(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. Answer sheet 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. Attempt two questions from each unit.

**UNIT - I**

1. a) Draw schematic diagrams to show the water treatment units of following waters : **10**
  - i) River
  - ii) Tube well.
- b) Estimate population of 2021 & 2031 with following data : **10**

Year	1991	2001	2011
Population	10000	15000	17500

Use incremental increase method.
- c) Compare quality of ground water and surface water. **10**

**UNIT - II**

2. a) Draw neat sketch of a river intake. **10**
- b) Write technical note on PVC pipes. **10**
- c) i) What are pressure break tanks ? **5**
- ii) Pressure relief valves. **5**

**UNIT - III**

3. a) Describe principle of turbidity measurement using Nephelo turbidity meter. **10**

- b) Give "acceptable limit" and "cause of rejection" limit of following parameters. **10**  
turbidity, taste, odor, pH, color.
- c) Give logical reasons for following :
- i) B Coli determination is done at 37°C **2**
  - ii) Nephelo turbidity meter is superior to Jackson turbidity meter. **2**
  - iii) Total solids are determined at 104°C. **2**
  - iv) Sample for hardness determination can be stored for long time but turbidity determination can not be. **2**
  - v) Distilled water has all parameters like total solid, turbidity, Hardness etc as zero, but pH is not zero. **2**

**UNIT - IV**

4. a) What are the various methods of aeration of water ? **10**
- b) What are the properties of a good coagulant ? **10**
- c) Describe an static flocculator. **10**

**UNIT - V**

5. a) Explain mechanisms of filtration. **10**
- b) Design a Rapid sand filter system of a population of 3 lakhs. **10**
- c) Explain break point chlorination. **10**

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