22504

23124

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define :

(i) Population Forecasting (ii) Intake Structure

(b) State two factors governing location of an Intake Structure.

(c) State the acceptable limits of drinking water for the below listed parameters according to IS-10500

(i) Flourides (ii) Hardness

(iii) pH (iv) Chlorides

(d) State the principle of sedimentation with coagulation.

(e) State the location and function of Reflux valve.

(f) Define Self Cleansing Velocity.

(g) State any two objects of sewage treatment plant.

2. Attempt any THREE of the following : **12**

(a) Draw flow diagram of water treatment plant.

(b) Estimate probable population for data provided for year 2031 and 2041 using incremental increase method.

Year	1991	2001	2011	2021
Population	9,876	10,865	11,509	13,852

(c) List the various types of demand of water with their percentage for a town.

(d) Give comparison between Slow Sand filter and Rapid Sand filter on any eight points.

3. Attempt any THREE of the following : **12**

(a) Define Disinfection and enlist the different methods of disinfection.

(b) State and explain the theory of filteration.

(c) Explain Jar Test with neat labelled sketch.

(d) Define valve and enlist the different types of valves.

4. Attempt any THREE of the following : **12**

(a) State Break Point chlorination and its importance with neat sketch.

(b) Define the terms (i) B.O.D. (ii) C.O.D.

(c) Differentiate between Dead end and Circular system.

(d) Enlist any eight types of pipes used for conveyance of water.

(e) Explain with neat sketch two pipe system of plumbing.

5. Attempt any TWO of the following : **12**

(a) Define trap and draw labelled sketch of any two trap and state two qualities of good trap.

(b) Define Aeration. Enlist the objects and different methods of Aeration.

(c) Draw sketch of Drop manhole and state its location, spacing and construction details.

6. Attempt any TWO of the following : **12**

(a) State the systems of sewerage. Describe separate system with merits and demerits.

(b) Explain working of septic tank with sketch.

(c) State the impurities removed in skimming tank and state how it helps in improving further biological treatment.