

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii) Assume data suitably, if any missing.

1. a) Enumerate the different surface and sub surface sources of water and compare the quality and quantity and suitability of various sources.

b) Explain the need and importance for planned water supply scheme to town.

2. a) What is an intake structure? What are the factors governing the selection of site for locating an intake?

b) Explain with a neat sketch of a reservoir intake.

3. a) Explain various waterborne diseases and their control.

b) Explain the different physical, chemical and bacteriological tests conducted on water.

4. a) Compare conservancy and water carriage system of sanitation.

b) Compare separate and combine sewerage system.

5. Design the section of a combined circular sewer from the following data:

Area to be served : 200 hectare

Population : 45,000

Time of entry : 10 min

Time of flow : 20 min

6. a) What do you understand by self-purification property of a stream?

b) What do you understand by oxygen sag curve?

7. A town discharge 80 cumecs of sewage into a stream having a rate of flow of 1200 cumecs during lean days, at a 5-day BOD of sewage at the given temperature is 250mg/l. Find the amount of critical DO deficit and its location in the downstream portion of the stream. Assume deoxygenation coefficient K as 0.1 and coefficient of self-purification (f_s) as 3.5. Assume saturation DO at given temperature as 9.2mg/l.

8. Explain following:

a) BOD b) COD c) Dissolve oxygen d) Relative stability