



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100658

Roll No.

--	--	--	--	--	--	--	--	--	--

B.Tech. (Semester-VI)

SPL. THEORY EXAMINATION, 2014-15

RURAL WATER SUPPLY AND SANITATION

Time : 3 Hours]

[Total Marks : 100

Note: Attempt all questions.

1. Attempt any two of the following: 2×10=20
 - (a) Name of different types of pumps generally used in water supply scheme? What are factors on which their selection depends?
 - (b) Explain the relation between public health and water supply.
 - (c) Differentiate between hazardous and non hazardous industrial solid wastes in India.

2. Attempt any four of the following: 5×4=20
 - (a) Derive Dupuit's formula for unconfined aquifer.
 - (b) What are the methods available for collection of solid wastes?

- (c) What is the advantage of a successful water supply project?
- (d) Define and aquiclude and aquitard.
- (e) Explain the working of imhoff tank. How is it comparable to a septic tank.
- (f) Mention and discuss the factors that influence per capita demand.

3. Attempt any four of the following: $5 \times 4 = 20$

- (a) What are the various types of springs? Discuss in brief.
- (b) Explain briefly the general methods of distribution of water employed in municipal water supply scheme.
- (c) What do you understand by filtration? Give design guidelines for rapid sand filtration.
- (d) Discuss the mechanism of working of a stabilization pond.
- (e) What are various operational problems of biogas plants in rural areas?

4. Attempt any two of the following: $2 \times 10 = 20$

- (a) How will you estimate the requirement of a village, while planning a water supply scheme for the same? Also discuss as to how will assess the necessary treatment which should be given to the available water source in the area.
- (b) What are the conditions which are considered to be favourable for the disposal of solid waste by land filling?

- (c) Differentiate between composting and vermi composting and explain their utilization in disposal of solid wastes in rural areas.

5. Attempt any two of the following: $2 \times 10 = 20$

- (a) What do you understand by the "sanitary landfill"? Discuss the physical test of solid wastes.
- (b) The population of a town as per the census records is given in following table:

Years	Population
1911	34100
1921	49511
1931	58422
1941	60633
1951	75844

Using incremental increase method, and geometrical increase method. Project the population of the town in the year 1981.

- (c) Discuss the advantages and disadvantages of steel, cast iron, wrought iron asbestos and plastic pipes.

—x—