



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Civil Engineering

Semester End Examination; June - 2017

Municipal and Rural Sanitation

Time: 3 hrs

Max. Marks: 100

Note: Answer *FIVE* full questions, selecting *ONE* full question from each Unit.

UNIT - I

1. a. Define disease. List and explain different terminologies that are commonly used based on the occurrence of the diseases in a community. 10
- b. With the help of a flow diagram, explain the dynamics of disease transmission from source to receiver. 10
2. a. List and explain briefly various general measures of controlling communicable diseases at a source of infection. 8
- b. Write a note on Rodent borne diseases their effects and control steps. 6
- c. What is immunization? Discuss various types of immunization. 6

UNIT - II

3. a. What is "Sanitation"? Define the same as per WHO. Also discuss the scope of sanitation studies in India with respect to current status. 8
- b. Illustrate the various steps to be considered for protecting ground water sources. 8
- c. Explain the significance and acceptable ranges of the following water quality parameters: 4
 - i) pH ii) Hardness
 - iii) Fluorides iv) Sulphates.
4. a. Explain the innovative approaches to improve sanitation and water supply in India. 6
- b. Discuss various activities that are involved in environmental sanitation. 6
- c. Comment on a circumstance that necessitates pumping of water. With the help of a neat sketch, explain the working principle of reciprocating pumps with merits and demerits. 8

UNIT - III

5. a. What is ecological sanitation? With the help of appropriate figures, discuss the nutrition value of urine and faeces as fertilizers. 8
- b. Citing suitable examples, explain reasons for not adopting ecological sanitation. 4
- c. With the help of a neat sketch, explain composting toilet" or "Arborloo". 8
6. a. With the aid of a sketch, explain the closing loop of ecological sanitation for urine-diverting dry toilets (UDT's). 6
- b. Explain the benefits and challenges of ecosan systems. 6

- c. What is rainwater harvesting? Discuss the needs and benefits of rain-water harvesting in present context. 8

UNIT - IV

- 7 a. Write a note on various functional elements of a solid waste management system. 10
b. Illustrate various methods of collection services used for collecting refuse from low rise dwellings. 10
- 8 a. Discuss briefly various methods of disposing solid waste that are commonly practiced with their merits and demerits. 8
b. With the help neat sketches, explain land fill methods of disposing solid waste. 12

UNIT-V

- 9 a. Briefly explain the effects of food borne infection and food borne intoxication. 6
b. Write a detailed note on food adulteration. 6
c. Illustrate the various problems that are commonly faced during fain and festival s and explain the steps to overcome the same. 8
- 10 a. List and explain steps involved in milk sanitation. 10
b. Write a note on various diseases that are commonly noticed in swimming pools. Explain steps to be considered for good sanitation in swimming pools. 10

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