

**DIPLOMA IN SMART CITY
DEVELOPMENT AND MANAGEMENT
(DSCDM)**

Term-End Examination

December, 2024

**MIO-005 : SMART CITIES : SAFE WATER,
SANITATION AND SUSTAINABILITY**

Time : 3 Hours

Maximum Marks : 70

Note : (i) Answer any **seven** questions.

(ii) All questions carry equal marks.

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1. Describe the following in detail : 2×5=10
 - (a) Treatment plant system security
 - (b) Finished water storage security

 2. (a) Explain *five* layer models of Smart Water Network (SWN). 5
 - (b) Write the uses of Supervisory Control and Data Acquisition (SCADA) System in water management. 5

3. Differentiate between the following :

4×2.5=10

- (a) Sullage and Sewage
 - (b) Raw sewage and Septic swage
 - (c) Storm water and Sub-soil water
 - (d) Garbage and Rubbish
4. Discuss the conservancy and water carriage system of waste collection in detail. 10
5. (a) Explain the different sources of municipal solid waste generation. 5
- (b) Discuss the various factors affecting the rate of municipal solid waste generation. 5
6. Define composting and the factors that affect composting process. What is the optimum range of pH to be maintained for the composting process ? 10
7. What are the conventional value-added products and what are the sources of these products ? Mention some of the conventional value-added products. 10
8. What are the different waste materials which could be used as construction materials ? Write a note on the optimum replacement of construction materials by waste materials in construction. 10

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