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MIO-005

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

Term-End Examination

June, 2025

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

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any ***seven*** questions. All questions carry equal marks.

1. (a) Write recommended measures to manage with water shortage during drought. 5

- (b) Discuss on untreated water storage security. 5
2. (a) What are the actions taken by any industry to tackle the water crisis ? Discuss in detail. 5
- (b) Define water audit. Write the components of water audit. 5
3. Define the following terms in reference to sewerage system : $5 \times 2 = 10$
- (a) Sullage
- (b) Sewer
- (c) Sanitary sewage
- (d) Refuse
- (e) Domestic sewage
4. (a) Compare the combined and separate sewerage system. 5
- (b) Briefly discuss the various patterns adopted for refuse collection. 5

5. (a) Define Biochemical Oxygen Demand (BOD). 2
- (b) Write the microbe(s), may be present in the waste water. 2
- (c) Explain in detail primary sedimentation unit of water/waste-water treatment plant. 6
6. (a) State the problems occurred due to improper solid waste management. 5
- (b) Discuss principal components of chemical waste available in waste water. 5
7. (a) Explain Biomethanization of solid waste and the factors affecting it. 8
- (b) What is Refuse-Derived Fuel (RDF) ? 2
8. (a) Define Value Addition. Write different approaches in value addition briefly. 5
- (b) What are the different waste materials which could be used as construction materials ? 5

9. Define the following :

5×2=10

- (a) Biodiesel
- (b) Biopesticides
- (c) Bioethanol
- (d) Biofertilizers
- (e) Bioflocculants

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