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MIO-005

**DIPLOMA IN SMART CITY
DEVELOPMENT AND
MANAGEMENT (DSCDM)
Term-End Examination**

June, 2026

**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.

1. (a) What are the major issues in Smart City Water Supply ? 5
- (b) Explain five layer model of SWAN. 5

2. (a) What is SCADA System ? What are its uses in water management ? 7
- (b) What are the uses of Smart Water Metering ? 3
3. (a) What are various types of settling in sedimentation tank ? Explain. 8
- (b) What is Septic Sewage ? 2
4. (a) Compare Combined Sewerage System and Separate Sewerage System. 5
- (b) Discuss various patterns adopted for refuse collection. 5
5. (a) Explain the components that determine the chemical characteristics of solid waste. 5
- (b) What are the Six M's in improving the solid waste management in the developing countries ? 5

6. (a) What are the necessary steps involved in transportation of solid Waste ? 7
- (b) What is the optimum range of pH to be maintained for the composting process ? 3
7. (a) Explain the steps involved in anaerobic digestion. 6
- (b) How is Refuse Derived Fuel (RDF) generated ? Explain. 4
8. (a) What are the different types of bio fuels that can be obtained from solid waste ? 5
- (b) Mention the conventional value-added products and explain any *two* in detail. 5
9. (a) What are different waste materials which could be used as construction material ? 5
- (b) What is Bio-diesel ? How is it produced ? 5

10. Write short notes on any *four* of the following : $4 \times 2\frac{1}{2} = 10$

- (a) Flocculation
- (b) Bio-ethanol
- (c) Bio-fertilizer
- (d) Grit chamber
- (e) Reverse Osmosis

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