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MIO-003

**DIPLOMA/CERTIFICATE IN SMART
CITY DEVELOPMENT AND
MANAGEMENT (DSCDM)/(CSCDM)
Term-End Examination
December, 2023**

**MIO-003 : SMART URBAN ENERGY AND SMART
TRANSPORTATION SYSTEMS**

Time : 3 Hours

Maximum Marks : 70

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

1. (a) Discuss the various applications of solar energy in a smart city in India. 5
(b) Explain the goals of smart lighting in brief. 5

2. What is BRT ? Explain the principles of be followed in developing BRT system for a smart city. 10

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3. (a) Discuss the features of connected vehicles in a smart city. 5
- (b) Explain the centralized traffic control and monitoring system. 5
4. Discuss the challenges of an Autonomous vehicle in a smart city. 10
5. What is ANPR system ? Discuss its implementation effectiveness in Indian traffic system. 10
6. (a) Explain the working principle of battery electric vehicles (BEVs). 5
- (b) Explain the working principle of hybrid electric vehicles (HEVs). 5
7. (a) Discuss how the Delhi metro expanded its network in Delhi. 5
- (b) Explain the subsystems of the ITMS in Ahmedabad Bus Services. 5
8. (a) Define the term Big-Data and explain its characteristics. 5
- (b) Discuss the applications of Big-Data in transportation system. 5

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9. What is Intelligent Speed Adaptation ? Discuss about collision warning systems. 10

10. Write short notes on any *four* of the following :

$$4 \times 2\frac{1}{2} = 10$$

- (a) Solar photovoltaic system
- (b) Plug-in charging of EV
- (c) Real time transient models
- (d) ATCS
- (e) SCOOT