**TU/CDOE**

**TEZPUR UNIVERSITY**

**SEMESTER END EXAMINATION (AUTUMN) 2023**

**DEM /DIPEVMD103: URBAN WATER MANAGEMENT**

Time: **3 Hours** Total Marks: **70**

*The figures in the right-hand margin indicate marks for the individual question.*

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1. Give two examples of each of the following 2x2=4
2. Point water pollution source
3. Non-point water pollution source

2. Write true or false 1x6=6

i. The Urban Heat Island Effect (UHI) is a phenomenon whereby the air over the rural areas results is slightly warmer compared to surrounding urban areas.

ii. Increased urban water demand generates pressure on existing infrastructure and the problem is more severe in developing countries.

iii. Solid waste management also includes agricultural waste.

iv. In the osmosis process, demineralization water is produced by forcing water through semi permeable membranes at high pressure.

v. Agricultural runoff is an example of point source of pollution.

vi. Continuous sources introduce contaminants to the streams for extended periods of time.

3. Explain the factors that aggravate water scarcity. 5

4. What is the effect of urbanization on surface run off? 5

5. What is water audit? 5

6. What is greywater and blackwater? 5

7. What is rain water harvesting? What are the types of rain water harvesting? Discuss its need and benefits. 10

8.Drawn and explain with the help of a schematic flow diagram showing the steps in primary, secondary and tertiary water treatment. 10 9. Discuss the classification criteria and regulatory norms of 3Rs for a sound material-cycle society. 10 10. What is urban flood? Discuss the cause and counter measures of urban flooding. 10

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