

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, December 2025

B. Tech./BBA, Semester I, 2025-26

Roll No.....

ES 1115: Environmental Science and Sustainability

Time: 02 hours

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Mention all the assumptions for your answers clearly.

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- Q. 1.1 **Case:** The River Shantika, which flows through three districts, has been experiencing rising pollution levels. Untreated sewage from nearby towns, industrial effluents from textile and chemical units, agricultural runoff containing pesticides, and indiscriminate solid-waste dumping have severely degraded the water quality. Although a water-purifying factory has recently been set up beside the river, it has been extracting groundwater and contributing to the pollution. Residents have raised serious concerns about increasing cases of waterborne diseases, loss of aquatic biodiversity, and a decline in irrigation productivity. 3+3+4=10
(CO 1&2)

Based on the case of the River Shantika, identify the major sources of water pollution and discuss the environmental and public health impacts. Which environmental laws and regulations in India are applicable to control and reduce this pollution? Explain how these laws can be implemented effectively.

OR

- Q. 1.1 **Case:** Western Ghats, one of the world's major biodiversity hotspots, has been experiencing rapid habitat loss due to expanding agriculture, infrastructure development, mining activities, and growing urbanization. As a result, several endemic species of plants, amphibians, and mammals have become threatened, primarily because of fragmented landscapes and the continuous decline in forest cover.

Using the case of the Western Ghats, explain the characteristics of a biodiversity hotspot and discuss why such regions are highly vulnerable. Analyze the major threats faced by this hotspot and suggest strategies to protect and restore its biodiversity.

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- Q. 2.1 Write a short note on the following topic. (Choose any two only)

- A- Fertilizers related problems
- B- Multidisciplinary nature of environment
- C- IPCC

3+3=6
(CO1,2,3&4)

- D- Photochemical Smog.
- E- Sustainable Development Goal

Q. 3.1 Choose a question to answer

3+3=6
(CO2,3&4)

- A- What is Municipal Solid Waste (MSW), how is it classified, and in what ways do thermal technologies such as pyrolysis and gasification contribute to sustainable solid waste management? Also, illustrate the separation of MSW components with a flow diagram.
- B- Explain the formation and environmental impacts of the Great Pacific Garbage Patch. How does it affect marine ecosystems and human health?

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- Q. 4.1 Case:** A recent environmental assessment of the metropolitan city of Delhi reveals consistently high levels of air pollution, particularly during peak traffic hours and the winter season. The report identifies multiple primary pollution sources and highlights the growing impact of secondary pollutants such as ozone and particulate matter formed through atmospheric chemical reactions. These pollutants are found to be affecting local ecosystems, public health, and overall urban livability.

4+4=8
(CO4&5)

Based on the case of Delhi, discuss the main sources of air pollution in the city. Explain how secondary pollutants are formed and describe their impacts on ecosystems and human health. Finally, suggest sustainable and long-term measures for preventing and controlling urban air pollution.

All the best!