



# All JNTU World

Get The Most Out Of Imagineering

## OBJECTIVES

- I. Understanding the importance of ecosystems, ecological balance for sustainable development.
- II. Recognize the significance of Natural resources, their classification and alternative energy sources for the sustainability of the environment, society and economy by appropriate maintenance of natural resources.
- III. Understand the biodiversity and types of biodiversity along with the Values and conservation of biodiversity.
- IV. Categorize the types of environmental pollution and the various treatment technologies for the diminution of environmental pollutants and contaminants.
- V. Summarize the global environmental issues and to create awareness about the international conventions and protocols for extenuating global environmental problems. Understanding the Environmental legislation and importance.
- VI. Understanding the sustainable development concept and importance of green building Understanding the importance of EIA,EIS and EMP.

| S No                                     | QUESTION   | Blooms taxonomy level | Course Outcomes |
|--|--|-----------------------|-----------------|
| <b>UNIT - I</b>                          |  |                       |                 |
| <b>ECOSYSTEMS</b>                        |  |                       |                 |
| <b>Part - A (Short Answer Questions)</b> |  |                       |                 |
| 1  | <b>Define</b> ecology and ecosystem.                               | Remember              | 1               |
| 2  | <b>Differentiate</b> between food chain and food web.              | Understand            | 1               |
| 3  | <b>Define</b> pyramid of energy.                                   | Remember              | 1               |
| 4  | <b>Briefly</b> discuss about grassland ecosystem                   | Analyze               | 1               |
| 5  | <b>Explain</b> few important characteristics of a forest ecosystem | Understand            | 1               |
| 6  | <b>Define</b> ecological pyramids.                                 | Understand            | 1               |
| 7  | <b>Define</b> pyramid of energy.                                   | Remember              | 1               |

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| 8   | <b>Differentiate</b> between grazing food chain detritus food chain.  | Analyze    | 1     |
| 9   | <b>Define</b> photosynthesis process.   | Remember   | 1     |
| 10  | <b>Enlist</b> the types of grasslands in India and two animal species found in this   | Remember   | 1     |
| <b>Part - B (Long Answer Questions)</b>                           |   |            |       |
| 1   | <b>Discuss</b> the major characteristics features of a river ecosystem different from lake ecosystem  | Remember   | 1     |
| 2   | <b>Enlist</b> the main components of ecosystem and briefly describe the functions of each   | Remember   | 1     |
| 3   | <b>Explain</b> the role of producers, consumers and decomposers in an ecosystem with practical example.   | Understand | 1     |
| 4   | <b>What</b> are food chain and food web? Give example and discuss their significance.   | Remember   | 1     |
| 5   | <b>What</b> are biogeochemical cycles? Explain nitrogen cycle with help of a diagram.   | Understand | 1     |
| 6   | <b>Describe</b> five ecosystems goods and services that human benefits from.  | Understand | 1     |
| 7   | <b>Discuss</b> the structure and function of desert ecosystem.  | Analyze    | 1     |
| 8   | <b>Explain</b> phosphate and sulphate cycles.   | Understand | 1     |
| 9   | <b>Explain</b> briefly about indicators of the quality of ecosystem.  | Understand | 1     |
| 10  | <b>What</b> is meant by biomagnifications? Explain  | Understand | 1     |
| 11  | Sustainable management of natural resources is essential to provide livelihood and environmental security'. Discuss.  | Analyze    | 1,2   |
| <b>Part - C (Problem Solving and Critical Thinking Questions)</b> |   |            |       |
| 1   | <b>Explain</b> how different development activities, including construction of dams, affect the various ecosystems and what action need to be taken to conserve them.   | Understand | 1     |
| 2   | <b>Explain</b> the impacts of pesticide and other agro chemicals on any ecosystem you have visited.   | Understand | 1     |
| 3   | <b>Explain</b> with examples the links between the activities of man which are hazardous to human health and ecosystem.   | Understand |       |
| 4   | <b>Discuss</b> how are life system affected by stress?  | Analyze    | 1     |
| 5   | What impacts do human activities have on populations, communities and Ecosystems.   | Remember   | 1     |
| 6   | <b>Write</b> a brief scenario describing the sequence of consequences to us other forms of life if decomposers and detritus feeders were some how eliminated, all producers on land in upper zone of aquatic ecosystems were eliminated by drastic increases in UV radiation region earth surface due to loss of protective stratosphere ozone layer. | Evaluate   | 1,4,5 |
| 7   | <b>Explain</b> the significance of preserving of balance in various kinds of ecosystem. Illustrate with examples.   | Apply      | 1     |
| 8   | <b>Discuss</b> models of energy flow in an ecosystem  | Analyze    | 1     |
| 9   | <b>What</b> is homeostasis? What are feedback mechanism   | Apply      | 1     |
| 10  | <b>Explain</b> the significance of preserving of balance in various kinds of ecosystem. Illustrate with an example.   | Apply      | 1     |
| <b>UNIT - II<br/>NATURAL RESOIRCES</b>                            |   |            |       |
| <b>Part – A (Short Answer Questions)</b>                          |   |            |       |
| 1   | <b>Enumerate</b> some of the water resources problems in India.   | Analyze    | 3     |
| 2   | <b>Discuss</b> the problems of over exploitation of ground water.   | Analyze    | 3     |
| 3   | <b>Enlist</b> different surface and ground water resources.   | Remember   | 4     |
| 4   | <b>What</b> are the environmental effects of using of mineral resources?  | Remember   | 3     |
| 5   | <b>What</b> is mineral? What is its use?  | Understand | 3     |

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| 6   | <b>What</b> is water logging?   | Understand    | 3   |
| 7   | <b>What</b> is soil erosion?  | Understand    | 3   |
| 8   | <b>What</b> are the effects of soil pollution?  | Analyze       | 3   |
| 9   | <b>Differentiate</b> soil texture and structure.  | Analyze       | 3   |
| 10  | <b>What</b> are the different types of natural resources  | Remember      | 3   |
| <b>Part - B (Long Answer Questions)</b>                 |   |               |     |
| 1   | <b>What</b> are Natural resources and write the classification of resources.  | Remember      | 2   |
| 2   | <b>Discuss</b> Big dams - Benefits and problems   | Understand    | 2,3 |
| 3   | <b>What</b> are Mineral Resources, uses and exploitation?   | Remember      | 2,3 |
| 4   | <b>What</b> are alternate energy sources? Explain their present status, merits and demerits.  | Analyze       | 2,3 |
| 5   | <b>What</b> are the different types of energies which can be derived from the ocean? Explain briefly along with their advantages and limitations.   | Analyze       | 2,3 |
| 6   | <b>Describe</b> the merits and demerits of nuclear power energy and discuss the major concern regarding its use for electricity generation in India | Analyze       | 2,3 |
| 7   | <b>Write</b> a note on solar energy; also discuss about the solar cells with a diagram and enumerate its applications                               | Understand    | 3   |
| 8   | <b>Write</b> a note on growing energy needs?  | Remember      | 3   |
| 9   | <b>What</b> are non renewable energy resources; explain in detail.  | Analyze       | 2,3 |
| 10  | <b>What</b> is an aquifer? Discuss its types?   | Understand    | 2   |
| <b>Part – C (Problem Solving and Critical Thinking)</b> |   |               |     |
| 1   | <b>Summarize</b> a detailed report on the management of water and waste water in your town/city?  | Remember      | 2,4 |
| 2   | Discuss with the help of a case study, how big dams have affected forests and tribal?   | Understand    | 2   |
| 3   | <b>What</b> mineral resource is extracted in your local area? What mining methods are used.   | Remember      | 2   |
| 4   | <b>Evaluate</b> timber harvesting on private and public lands in the local area ? what are most widely harvested                                    | Understand    | 2,3 |
| 5   | <b>How</b> is electricity in your community is produced? Does your community And college has a plan for improving energy efficiency                 | Apply         | 1,2 |
| 6   | <b>Explain</b> the effects of dams on tribal people with special reference to indira sagar project?   | Remember      | 2,3 |
| 7   | <b>Discuss</b> the role played by the non conventional; energy resources towards the protection of the environment?                                 | Understand    | 2,3 |
| 8   | <b>What</b> is biogas; discuss the structure and function of the biogas.  | Remember      | 2,3 |
| 9   | <b>Write</b> a note on solar energy; also discuss about the solar cells with a diagram and enumerate its applications                               | Understand    | 2,3 |
| 10  | Briefly discuss droughts and floods with respect to their occurrence and impacts.   | Apply         | 2,3 |
| <b>UNIT-III<br/>BIODIVERSITY AN BIOTIC RESOURCES</b>    |   |               |     |
| <b>Part - A (Short Answer Questions)</b>                |   |               |     |
| 1.  | <b>Enumerate</b> the biogeographical classification of India.   | Analyze       | 4   |
| 2.  | <b>What</b> do you mean by hot spots of biodiversity? Mention the three hot spots in India.   | Remember,     | 4   |
| 3.  | <b>Differentiate</b> between endanger and endemic species.  | Differentiate | 4   |
| 4.  | <b>What</b> is meant by in situ and ex situ conservation of biodiversity?   | Understand    | 4   |
| 5.  | <b>What</b> does NBPGR AND NBAGR stand for? Where are they located?   | Analyze       | 4   |
| 6.  | <b>Enlist</b> the indirect values of biodiversity   | Remember      | 4   |

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| 7.  | <b>Define</b> biological diversity.   | Understand  | 4   |
| 8   | <b>Differentiate</b> genetic and species diversity.   | Analyze     | 4   |
| 9.  | <b>Define</b> national biodiversity act.  | Understand  | 4   |
| 10.   | <b>How</b> do you consider India as a nation of mega diversity nation?  | Analyze     | 4   |
| <b>Part – B (Long Answer Questions)</b>                 |   |             |     |
| 1   | <b>Discuss</b> the causes of man-wild life conflicts. Suggest suitable wild life conservation practices.  | Analyze     | 4   |
| 2   | <b>What</b> is biodiversity? Explain different types of biodiversity.   | Understand, | 4   |
| 3   | <b>Explain</b> in-situ and ex-situ conservation of biodiversity   | Understand  | 4   |
| 4   | <b>Briefly</b> explain endangered species of India?   | Remember    | 4   |
| 5   | <b>Identify</b> and explain the present day major threats to the biodiversity of India?   | Analyze     | 4   |
| 6   | <b>Discuss</b> the various strategies of conservation of biodiversity?  | Analyze     | 4   |
| 7   | <b>Write</b> the direct and indirect values of biodiversity?  | Analyze     | 4   |
| 8   | <b>Explain</b> the necessity for viewing the biodiversity as a global resource. Describe with examples the steps that are being taken towards this purpose.   | Analyze     | 4   |
| 9   | <b>Write</b> a brief note on conservation of biodiversity?  | Understand  | 4   |
| 10  | <b>Write</b> the direct and indirect values of biodiversity?  | Remember    | 4   |
| <b>Part – C (Problem Solving and Critical Thinking)</b> |   |             |     |
| 1   | <b>What</b> are environmental hot spots of your city? Explain the possible factors observed by you for degradation of quality of hot spot. Suggest suitable engineering measure to restore their quality. | Understand  | 4   |
| 2   | <b>How</b> do different developmental activities, including construction of dams, affect the biodiversity and action need to be taken to conserve them.   | Evaluate    | 4   |
| 3   | <b>What</b> are environmental hot spots of your city? Explain the possible factors observed by you for degradation of quality of hot spot. Suggest suitable engineering measure to restore their quality. | Evaluate    | 4   |
| 4   | <b>Identify</b> examples of habitat destruction or degradation in your local community that had harmful effects on the populations of various wild plant and animal species.                              | Evaluate    | 4   |
| 5   | <b>Evaluate</b> cattle grazing on private and public rangeland and pastures in your local area.   | Analyze     | 4   |
| 6   | <b>Comment</b> upon Indian biodiversity with special reference as a megadiversity nation. How do biosphere reserves help in conservation of biodiversity.   | Apply       | 4   |
| 7   | <b>What</b> are the different services that are contributed in various ways by biodiversity?  | Apply       | 4   |
| 8   | <b>Discuss</b> the various strategies of conservation of biodiversity?  | Understand  | 4   |
| 9   | Enumerate five important biosphere reserves, national parks and wild life sanctuaries of India  | Apply       | 4   |
| 10  | <b>Identify</b> and explain the present day major threats to the biodiversity of India?   | Apply       | 4   |
| <b>UNIT-IV</b>  |   |             |     |
| <b>ENVIRONMENTAL POLLUTION AN CONTROL TECHNOLOGIES</b>  |   |             |     |
| <b>Part – A (Short Answer Questions)</b>                |   |             |     |
| 1   | <b>Write</b> about environmental pollution and explain their types.   | Understand  | 5   |
| 2   | <b>Define</b> air pollution and describe the technologies for the control of air pollution.   | Remember    | 5,6 |
| 3   | <b>Explain</b> primary and secondary sources of air pollution?  | Understand  | 5   |
| 4   | <b>Write</b> about environmental pollution and explain their types.   | Remember    | 5   |
| 5   | <b>What</b> are the effects of water pollution and enumerate drinking water quality standards   | Remember    | 5,6 |

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|----|---|------------|-----|
| 6  | <b>Briefly</b> explain the Municipal Solid Waste management   | Apply      | 5,6 |
| 7  | <b>Write</b> a note on climate change and impacts on human environment  | Understand | 6   |
| 8  | <b>Explain</b> Ozone depletion and Ozone depleting substances (ODS).  | Evaluate   | 6   |
| 9  | <b>List</b> out the Sewage treatment plants, effluent treatment plants and common effluent treatment plants in your vicinity. | Evaluate,  | 6   |
| 10 | <b>What</b> are the problems encountered in the disposal of solid waste from various sources?                                 | Analyze    | 5   |

**Part – B (Long Answer Questions)**

|    |   |            |     |
|----|---|------------|-----|
| 1  | <b>List</b> out the Sewage treatment plants, effluent treatment plants and common effluent treatment plants in your vicinity.                           | Understand | 5,6 |
| 2  | <b>What</b> are the problems encountered in the disposal of solid waste from various sources?   | Apply      | 5,6 |
| 3  | <b>How</b> e-waste can be effectively managed.  | Apply      | 5,6 |
| 4  | <b>List</b> out the Sewage treatment plants, effluent treatment plants and common effluent treatment plants in your vicinity.                           | Remember   | 5,6 |
| 5  | <b>How</b> many times during each of past five years have levels of tested contaminants violated pollution control board standards?                     | Creating   | 5,6 |
| 6  | <b>Compare</b> weather storm drains and sanitary sewers combines or separate in your area? Are there plans to reduce pollution from storm water runoff? | Evaluate   | 5,6 |
| 7  | <b>Develop</b> and action plan for reducing your exposure to indoor air pollution.  | Remember   | 5,6 |
| 8  | <b>Identify</b> at least two moral and ethical responses each to the issue of global climate values, beliefs and perspectives.                          | Remember   | 5,6 |
| 9  | <b>Compare</b> From available air quality data determine whether outdoor air pollutants in your community became better or worse since last 10 years.   | Evaluate   | 5,6 |
| 10 | <b>Discuss</b> the salient features of earth summit.  | Apply      | 5,6 |

**Part – C (Problem Solving and Critical Thinking)**

|    |   |            |     |
|----|---|------------|-----|
| 1  | <b>Write</b> about environmental pollution and explain their types.   | Understand | 5   |
| 2  | <b>Define</b> air pollution and describe the technologies for the control of air pollution                                    | Remember   | 5,6 |
| 3  | <b>Explain</b> primary and secondary sources of air pollution?  | Understand | 5   |
| 4  | <b>Write</b> about environmental pollution and explain their types.   | Remember   | 5   |
| 5  | <b>What</b> are the effects of water pollution and enumerate drinking water quality standards                                 | Remember   | 5,6 |
| 6  | <b>Briefly</b> explain the Municipal Solid Waste management   | Apply      | 5,6 |
| 7  | <b>Write</b> a note on climate change and impacts on human environment  | Understand | 6   |
| 8  | <b>Explain</b> Ozone depletion and Ozone depleting substances (ODS).  | Evaluate   | 6   |
| 9  | <b>List</b> out the Sewage treatment plants, effluent treatment plants and common effluent treatment plants in your vicinity. | Evaluate,  | 6   |
| 10 | <b>What</b> are the problems encountered in the disposal of solid waste from various sources?                                 | Analyze    | 5   |

**UNIT-V**

**ENVIRONMENTAL POLICY, LEGISLATION AND EIA**

**Part - A (Short Answer Questions)**

|   |   |            |     |
|---|---|------------|-----|
| 1 | <b>Enlist</b> the objectives of Air pollution act.                              | Remember   | 6,7 |
| 2 | <b>Explain</b> the necessity of wild life protection act.                       | Remember   | 7   |
| 3 | <b>Explain</b> the necessity of various environmental legislations.             | Remember   | 7   |
| 4 | <b>Mention</b> the objectives of environmental protection act.                  | Analyze    | 6,7 |
| 5 | <b>What</b> is environmental impact assessment?                                 | Understand | 6   |
| 6 | <b>Define</b> Environmental Impact Assessment and Environmental Management Plan | Understand | 6   |

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| 7   | <b>Define</b> sustainable development.  | Understand | 7   |
| 8   | <b>What</b> is the role of remote sensing and GIS in EIA study.   | Understand | 6,7 |
| 9   | <b>What</b> is meant by crazy consumerism?  | Understand | 7   |
| 10  | <b>What</b> are the principles of sustainable cities.   | Analyze    | 7   |
| <b>Part - B (Long Answer Questions)</b>                 |   |            |     |
| 1   | <b>Write</b> about environmental protection Act   | Apply      | 7   |
| 2   | Discuss the major provisions in Forest Conservation Act 1980  | Evaluate   | 7   |
| 3   | <b>What</b> are the major municipal solid waste management and handling rules.  | Evaluate   | 5,6 |
| 4   | <b>What</b> are the biomedical wastes? What are the rules to manage and handle them.  | Evaluate   | 5   |
| 5   | <b>Write</b> a note on Impacts of air, water, biological and Socio-economical Aspects   | Apply      | 4,5 |
| 6   | <b>Explain</b> the concept of sustainable development   | Analyze    | 7   |
| 7   | <b>Write</b> a note on environmental ethics and explain concept of green Building   | Apply      | 7   |
| 8   | <b>Illustrate</b> Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.                                    | Apply      | 7   |
| 9   | <b>Briefly</b> explain the Municipal Solid Waste management   | Analyze    | 6,7 |
| 10  | <b>Write</b> a note on climate change and impacts on human environment  | Apply      | 7   |
| <b>Part – C (Problem Solving and Critical Thinking)</b> |   |            |     |
| 1   | <b>Identify</b> environmental education necessary in the present context? What is your opinion about the environmental ethics?  | Analyze    | 6,7 |
| 2   | <b>Explain</b> are you crazy about the consumerism?   | Remember   | 7   |
| 3   | <b>Describe</b> Environmental Education and its role in the present context.  | Remember   | 7   |
| 4   | <b>What</b> is Urban sprawl and how is it related to human health.  | Remember   | 7   |
| 5   | <b>Write</b> a note on environmental ethics and explain concept of green Building   | Apply      | 6,7 |
| 6   | <b>Brief</b> out Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style                                      | Remember   | 7   |
| 7   | <b>Discuss</b> the role of IT in environment  | Apply      | 7   |
| 8   | <b>What</b> are the earth centric and human centric world views   | Evaluate   | 6,7 |
| 9   | <b>Discuss</b> basic characteristics of Green buildings.  | Understand | 7   |
| 10  | <b>What</b> is the role assigned to central pollution control board and state pollution control board under the water act 1974. | Apply      | 7   |

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