

Punjab University, Patiala, All UG Courses - Ind Year (3<sup>rd</sup> Semester) Environmental and Road Safety Awareness Session: 2022-23, 2023-24 & 2024-25

All UG Courses - II<sup>nd</sup> Year (3<sup>rd</sup> Semester)  
Environmental and Road Safety Awareness  
Session: 2022-23, 2023-24 & 2024-25

Total Marks: 100  
Theory: 60 marks  
Internal Assessment: 15  
(5 for Attendance & 10 for MST)  
Mandatory field visit to PG  
Science City & Report: 25 Marks

Max Time: 3 hrs.  
Lectures per week 5  
Credits: 04

#### **INSTRUCTIONS FOR THE PAPER SETTERS (Regular Students)**

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 9 marks. Section C will consist of 12 short answer type questions of 2 marks each.

#### **INSTRUCTIONS FOR THE CANDIDATES**

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

#### **PRIVATE/DISTANCE EDUCATION STUDENTS**

Max Marks: 100

Max Time: 3hrs.  
Lectures per week 5

#### **INSTRUCTIONS FOR THE PAPER SETTERS**

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 15 marks. Section C will consist of 20 short answer type questions of 2 marks each.

#### **INSTRUCTIONS FOR THE CANDIDATES**

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

#### **SECTION-A**

#### **INTRODUCTION TO ENVIRONMENTAL STUDIES:**

The multidisciplinary nature of environmental studies. Definition, scope and importance  
Concept of Biosphere – Lithosphere, Hydrosphere, Atmosphere.

#### **ECOSYSTEM & BIODIVERSITY CONSERVATION**

Ecosystem and its components, Types of Ecosystems  
Biodiversity - Definition and Value, Threats to biodiversity and its conservation  
Level of biological diversity: genetic, species and ecosystem diversity; bio-geographic zones of India; biodiversity patterns and global biodiversity hot spots.  
India as Mega-biodiversity nation; Endangered and endemic species of India.  
Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

## **NATURAL RESOURCES-RENEWABLE AND NON RENEWABLE RESOURCES**

Land resources and land use change; land degradation, soil erosion and desertification. Deforestation: causes and impacts due to mining, dam building on environment, Forests, Biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, Floods, droughts, conflicts over water (international & inter-state)

Energy resources: renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies.

### **Environmental Pollution**

Environmental Pollution: types, causes, effects and controls; Air, Water, Soil and noise pollution. Nuclear hazards and human health risks Solid waste management, Source Segregations: Control measures of urban and Industrial waste. Pollution case studies.

## **SECTION-B**

### **ENVIRONMENTAL PROTECTION LAWS IN INDIA**

Environmental protection act for: Air (Prevention and control of pollution), Water (Prevention and Control of pollution), Wild life, Forest Conservation, Issues involved in the enforcement of environmental legislation. Role of an individual in prevention of pollution.

Environmental policies & Practices; Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

### **Human Communities and the Environment**

Human population growth: Impacts on environment, human health and welfare, Sanitation & Hygiene. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environment movements: Chipko, Silent valley, Bishnoi of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation for a Clean-green pollution free state. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi)

### **ROAD SAFETY AWARENESS**

Concept and significance of Road safety, Traffic signs, Traffic rules, Traffic Offences and penalties, How to obtain license, Role of first aid in Road Safety.

### **Stubble Burning**

Meaning of Stubble burning.

Impact on health & environment.

Management and alternative uses of crop stubble.

Environmental Legislations and Policies for Restriction of Agriculture Residue Burning in Punjab.

### **Field Work**

Visit to an area to document environmental assets: river/Forest/Flora/Fauna, etc.

Visit to Local polluted site –urban/Rural/Industrial/Agricultural.

Study of common Plants, Insects, Birds and basic principles of identification.

Study of simple ecosystems-pond, river, Delhi Ridge, etc.

**Suggested Readings:**

1. Carson, R.2002. Silent Spring, Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson, B. and Low, N.(eds.)1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev. Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
6. Grunbaine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalayas dams. Science, 339:36-37.
7. McCully, P. 1996. Rivers no more: the environmental effects of dams (pp.29-64). Zed Books.
8. McNeill, John R. 2000. Something New Under the Sun : An Environmental History of the Twentieth Century.
9. Odum, E.P., H.T & Andrews, J.1971. Fundamentals of Ecology. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P & Brusseau, M.L. 2011. Environmental and Pollution Sciences. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt.Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8Th edition. John Wiles & Sons.
13. Rosencranz, A., Divan, S., & Nobie, M.L. 2001. Environmental law and policy in India. Tripathi 1992
14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology. Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S. Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
18. Warren, C.E. 1971. Biology and Water Pollution Control. WB Saunders.
19. Willson, E.O. 2006. The Creation: An appeal to save life on earth. New York: Norton.
20. World commission on Environment and Development. 1987. Our Common Future. Oxford University Press.

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