

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, May/June, 2018

Programme:	M.Sc. (Environmental Science)	Session:	2017-18
Semester:	2nd	Max. Time:	3 Hrs
Course Title:	Environmental Chemistry	Max. Marks:	70
Course Code:	SEES EVS 01 02 05 C 4004		

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.
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Question No. 1

(4 x 3.5=14)

1. Write short note on the followings:
 - a) Write the gas phase homogeneous oxidation of SO₂ in air.
 - b) How temperature increase affects the solubility of gases and solids.
 - c) What is Eutrophication?
 - d) Describe the process of Laterization.
 - e) Write the impacts of Acid Rain.
 - f) Define BOD and write its CPCB limit for effluent discharge?
 - g) Write the importance of humus for soil?

Question No. 2

(2 x 7=14)

- a) Define hardness of water? How the calcium hardness is determined?
- b) Describe the point and non-point sources of organic pollutants in the sewage.
- c) Explain the following:
 - i) Sedimentation
 - ii) Gibbs free energy

Question No. 3

(2 x 7=14)

- a) Discuss the emission of major gases from different types of anthropogenic sources of air pollution.
- b) Describe the formation and importance of hydroxyl radical in the atmosphere.
- c) Discuss the ozone formation in the troposphere and explain how it is different from the ozone formation in the stratosphere?

Question No. 4

(2 x 7=14)

- a) What is weathering? Discuss the chemical weathering process with suitable examples.
- b) Give a detailed account of macro and micro nutrients in soil.
- c) What is soil? Explain its properties in detail.

Question No. 5

(2 x 7=14)

- a) Explain the sources, causes and effects of toxic chemicals in environment.
- b) Define pesticides. Give their classifications. What are the effects of pesticide pollution?
- c) Write brief note on the following:
 - i) Chemical fertilizers
 - ii) Heavy metals

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Term End Examinations, May/June, 2018

Programme:	M.Sc. (Environmental Science)	Session:	2016-17
Semester:	2nd	Max. Time:	3 Hours
Course Title:	Environmental Policies & Laws	Max. Marks:	70
Course Code:	SEES EVS 1206 C 4004		

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.
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Question No. 1

(4 x 3.5=14)

1. Write short note on the followings:
 - a) Rio+5
 - b) Article 253
 - c) National Water Policy
 - d) Project Tiger
 - e) Basel Convention
 - f) Polluter Pays Principle
 - g) CRZ-I

Question No. 2

(2 x 7=14)

- a) Enumerate the key objectives of National Environmental Policy of India. Describe in brief the concrete action plan to tackle the issue of desertification in India.
- b) Describe in detail the key objectives and outcomes of World Summit on Sustainable Development, 2002. Give a brief account of its relevant to reform regulatory regimes to achieve sustainable development in India.
- c) Explain the Precautionary Principle (PP). Give a brief account of its relevance to environmental policies and regulatory mechanism in India for protection of various environmental components.

Question No. 3

(2 x 7=14)

- a) Give a brief account of "Environmental Protection Act, 1986" in relevance to implementation of protection of environmental components. Explain how Environmental Protection Act, 1986 is different from existing acts in India.
- b) Briefly elucidate the policy provisions available in India with their key objectives for regulation of coastal zone. Give a brief account of rules available for protection and regulation of coastal stretches in small islands.
- c) Give a brief account of constitution and functioning of "Joint Boards" under The Water (Prevention and Control of Pollution) Act, 1974. Explain how Joint Boards are significant over state boards to control and prevent water pollution.

Question No. 4

(2 x 7=14)

- a) Elucidate the pertaining policy measures for conservation of forest area in India with their key objectives. Briefly explain the provisions for restriction on the forest de-reservation or use of forest land for non-forest purpose under The Forest Conservation Act, 1980.
- b) Briefly explain the contribution of Wildlife Protection Act towards protection of habitat in India. Enlist the effective practices implemented in India for conservation of forests and wildlife.
- c) Explain briefly the provisions available in Biological Diversity Act in India to conservation and protection of biodiversity considering the need of the act. Enlist the activities which do NOT require permission their execution under this act.

Question No. 5

(2 x 7=14)

- a) What do you mean by Biomedical Waste? Briefly explain the silent features of Biomedical Waste Rules for management of Biomedical Waste in India.
- b) Elucidate the structure and role of Institutional Biosafety Committee to regulate hazardous microorganisms and genetically engineered cells. Enlist the approvals and prohibitions addressed by the committees at various levels under the specified rules for hazardous microbes.
- c) Briefly describe the policy measures enlisted in Motor Vehicle Act to regulate and control vehicular pollution in India.

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Term End Examinations, May/June, 2018

Programme: M.Sc. (Environmental Science)
Semester: 2nd
Course Title: Environmental Policies & Laws
Course Code: SEES EVS 01 02 06 C 4004

Session: 2017-18
Max. Time: 3 Hours
Max. Marks: 70

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No. 1

(4 x 3.5=14)

1. Write short note on the followings:
- a) Polluter Pays Principle
 - b) Green Investment Scheme
 - c) Article 253 of Indian Constitution
 - d) Montreal Protocol

- e) CRZ-I
- f) Ecomark Scheme
- g) National Biodiversity Authority (NBA)

Question No. 2

(2 x 7=14)

- a) Give a detail account of action taken in India to preserve and conserve quality of water and to reduce water pollution in inland water bodies.
- b) What is global warming? Explain its impacts. Give a brief account of international efforts adopted to regulate levels of GHGs in the atmosphere.
- c) Explain the status of Precautionary Principle pertaining to the environmental legislations in India. Give a brief account of its implications for policy and governance.

Question No. 3

(2 x 7=14)

- a) What do you understand by Stockholm Conference? How the Stockholm Conference has directed towards introduction of common principles for preservation and enhancement of the human environment.
- b) Define wetland. Why wetlands conservation is essential? Describe the criteria for identifying Wetlands of International Importance under Ramsar Convention.
- c) What do you mean by sustainable development? Give a brief account of efforts taken at international level to support the developmental activities in a sustainable way. Explain in reference to various commissions and conferences.

Question No. 4

(2 x 7=14)

- a) Give a brief account of "The Air (Prevention and Control of Pollution) Act, 1981. Describe the power and functions of the CPCB for prevention and control of air pollution.
- b) Briefly explain "The Environmental (Protection) Act, 1986". Elucidate significance of the Environmental (Protection) Act, 1986 over the existing act and rules in India for maintaining the quality of environment.
- c) Write short note on the following:
 - a) Forest Conservation Act, 1980
 - b) Noise Pollution (Regulation and Control) Rules, 2000

Question No. 5

(2 x 7=14)

- a) Define hazardous waste. Enlist its characteristics. Briefly explain the provision and policy measures existing in India pertaining to management and transboundary movement of hazardous waste.
- b) Explain the significance of management of e-waste in India. Briefly explain the responsibilities of occupiers towards management of e-waste in India in reference to e-waste (Management) Rules, 2016.
- c) Define Bio-Medical Waste. Briefly describe the policy measures in India to regulate biomedical waste in reference to its treatment and disposal.

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Term End Examinations, May/June 2018

Programme:	M.Sc. (Environmental Science)	Session:	2017-18
Semester:	4 th	Max. Time:	3 Hours
Course Title:	Environmental Biotechnology	Max. Marks:	70
Course Code:	SEES EVS 01 04 05 DCEC 4004		

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.
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Question No. 1

(4 x 3.5=14)

1. Write short note on the followings:

- | | |
|----------------------------|----------------------|
| a) Bio-hydrogen production | e) Bio-magnification |
| b) cDNA library | f) Acidophiles |
| c) Biopesticides | g) DNA ligation |
| d) Cellulase production | |

Question No. 2

(2 x 7=14)

- a) Differentiate endonucleases and restriction endonucleases. Give a brief account of various types of restriction endonucleases and their cleavage pattern.
- b) Describe the process of Southern Blotting. Discuss the utility of this technique in molecular probing for biotechnological research.
- c) Write short note on the followings:
 - i) DNA ligase
 - ii) Reverse-transcriptase

Question No. 3

(2 x 7=14)

- a) What do you understand by vector? Enlist the characteristics of a good vector. How do plasmid vectors differ from phage vectors in term of their structure and utility?
- b) What do you mean by polymerase chain reaction (PCR)? Explain the procedure and applications of PCR.
- c) Write short note on following:
 - i) Xenobiotic compounds
 - ii) GMOs

Question No. 4

(2 x 7=14)

- a) What is bioreactor? Briefly describe basic design and types of bioreactors, pertaining to its various applications in different sectors.
- b) Give a brief account of industrial applications of cellulase, amylase and protease.
- c) Write brief note on the following:
 - i) Biofuels and food security
 - ii) Second generation biofuels

Question No. 5

(2 x 7=14)

- a) What are biofertilizers? Briefly elaborate the biofertilizers and their significant role in integrated nutrient management.
- b) Give a brief account of different types of microbial nitrogen fixation in leguminous and non-leguminous plants. How biological nitrogen fixation could help for restoration of degraded lands?
- c) Write a note on the following:
 - i) Plant-incorporated protectants (PIPs)
 - ii) Bioremediation of dyes

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Term End Examinations, May/June, 2018

Programme:	M.Sc. (Environmental Science)	Session:	2017-18
Semester:	2nd	Max. Time:	3 Hrs
Course Title:	Instrumentation Techniques	Max. Marks:	70
Course Code:	SEES EVS 01 02 08 C 4004		

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.
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Question No. 1

(4 x 3.5=14)

1. Write short note on the followings:

- | | |
|----------------------------|----------------------|
| a) Precision | e) Gradient elution |
| b) Representative sampling | f) Jablonski diagram |
| c) Bragg's Law | g) Coulometry |
| d) Scintillation counter | |

Question No. 2

(2 x 7=14)

- a) Describe different methods used for the collection of solid samples. Enlist the precautionary measures that should be taken into consideration during collection of solid samples.
- b) Explain the principle errors reported in the analytical procedures with suitable examples.
- c) Write short note on:
 - i) Reference standard and calibration standard
 - ii) Limit of Quantification (LOQ)

Question No. 3

(2 x 7=14)

- a) What is titrimetry? Explain various types of titrimetric methods and their applications in environmental science.
- b) Explain principle, components and working of Atomic Absorption Spectrometer (AAS) with labeled diagram.
- c) Write brief notes on followings:
 - i) Flame photometry
 - ii) Nephelometry

Question No. 4

(2 x 7=14)

- a) Describe various developmental techniques used in paper chromatography. Explain in brief about significance of identifying R_x value over R_f value. Enlist also various factors which actually have a considerable impact on R_f value.
- b) Differentiate Gas Chromatography (GC) and High Performance Liquid Chromatography (HPLC). Explain different types of detectors in GC with their advantages and disadvantages.
- c) Write short note on the followings:
 - i) Ion Exchange Chromatography
 - ii) Size Exclusion Chromatography

Question No. 5

(2 x 7=14)

- a) Describe the principle and working of Bright field microscopy. Why phase contrast microscopy is significant over other light microscopic techniques?
- b) Define electron microscopy. Differentiate Scanning Electron microscopy (SEM) and Transmission Electron Microscopy (TEM). Detail out application of electron microscopy.
- c) Elaborate the following in brief:
 - i) Dichoric mirror
 - ii) Confocal microscopy

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Term End Examinations, May/June, 2018

Programme:	M.Sc. (Environmental Science)	Session:	2017-18
Semester:	4th	Max. Time:	3 Hrs
Course Title:	Forest and Wildlife Ecology	Max. Marks:	70
Course Code:	SEES EVS 01 04 06 DCEC 4004		

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
 2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.
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Question No. 1

(4 x 3.5=14)

1. Write short notes on the any four:
 - a) Extension forestry
 - b) Game Farming
 - c) Project Tiger
 - d) Primary Productivity
 - e) Biodiversity
 - f) Wildlife Protection
 - g) IUCN

Question No. 2

(2 x 7=14)

- a) Explain different methods of the measurement of primary production in the aquatic and terrestrial ecosystem?
- b) Write down the objectives, scope and necessities of the social forestry.
- c) Point out the benefits and problems associated with the Eucalyptus planation. Why Eucalyptus planation is not suitable in Indian region?

Question No. 3

(2 x 7=14)

- a) What is Silviculture? What is its importance? Discuss the principles and practices of Silviculture.
- b) What are the impacts of deforestation and shifting cultivation on forest ecosystems?
- c) What is forest management? Discuss different techniques of forest management.

Question No. 4

(2 x 7=14)

- a) Give a detailed account of common flora and fauna of India.
- b) Explain different tools used for data collection and analysis.
- c) Explain various factors influencing wildlife with respect to population behaviour and health?

Question No. 5

(2 x 7=14)

- a) What are special projects? Give a detailed note on any two special projects on endangered species.
- b) What are the roles of local communities in wildlife management?
- c) Write brief note on the following:
 - i. ICUN categories of Indian wildlife
 - ii. Biosphere reserve in India

