

VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CHEMISTRY

QUESTION BANK



II SEMESTER
GE 8291 – Environmental Science and Engineering
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Prepared by

S. No	Unit	Topic	Staff
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2	II	ENVIRONMENTAL POLLUTION	Ms. K. Anandhi Ms. R. Kamakshi
3	III	NATURAL RESOURCES	Ms. M. Meera Dr. J. Krishnamurthi
4	IV	SOCIAL ISSUES AND THE ENVIRONMENT	Dr. L. Devaraj Stephen Dr. N. Jayaprakash
5	V	HUMAN POPULATION AND THE ENVIRONMENT	Dr. M. Soundarrajan Mr. R. Balaji



UNIT – I: ENVIRONMENT, ECOSYSTEM AND BIODIVERSITY			
Q. No	Part-A (2 Marks)	BTL	Competence
1.	Explain the concept of an ecosystem?	3	Applying
2.	Mention the components of environment. Give examples.	2	Understanding
3.	State biodiversity.	1	Remembering
4.	Describe energy flow in an ecosystem.	1	Remembering
5.	Discuss about the ecological succession?	2	Understanding
6.	Analyze the characteristic features of marine ecosystem.	4	Analyzing
7.	Interpret the different levels of biodiversity?	3	Applying
8.	What is meant by ecology?	2	Understanding
9.	List out the various values of biodiversity.	2	Understanding
10.	Illustrate the significance of biodiversity?	3	Applying
11.	Defend the ethical value of biodiversity?	5	Evaluating
12.	Evaluate the characteristic features of food webs.	5	Evaluating
13.	Investigate about the biodiversity hot spots? List out any two hot spots in India.	6	Creating
14.	Formulate the biotic and abiotic components of an ecosystem?	6	Creating
15.	State habitat. Mention two examples.	1	Remembering
16.	Relate insitu and exsitu conservation of biodiversity.	4	Analyzing
17.	Define producers, consumers and decomposers.	1	Remembering
18.	Define ecological pyramid.	1	Remembering
19.	What are biogeochemical cycles?	1	Remembering
20.	Distinguish Food Chain and Food Web.	4	Analyzing

Q. No	PART –B	BTL	Competence
1.	Classify the types, characteristic features, structure and function of forest ecosystem.	2	Understanding
2.	Describe the types, characteristic features, structure and function of grassland ecosystem.	1	Remembering
3.	Write short notes on the following: i. Energy flow in eco-system. ii. Pond ecosystem. iii. Threats to bio-diversity.	6	Creating



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4.	i. Write the importance of protecting the biodiversity of earth. ii. Explain the major factors that are responsible for the loss of biodiversity.	6	Creating
5.	Express about the value that can be assigned to biodiversity.	1	Remembering
6.	What is biodiversity? Discuss the values and significance of biodiversity. (ii) With a neat sketch discuss the Nitrogen Cycle.	3	Applying
7.	Explore the various hot spots of biodiversity.	4	Analyzing
8.	i. Elucidate any one of the models of energy flow in an ecosystem ii. With a neat sketch, interpret the oxygen cycle.	3	Applying
9.	i. Analyze major threats to biodiversity. ii. Clarify the cycles in ecosystem.	4	Analyzing
10.	Compare a detailed note on biodiversity at national and global level.	4	Analyzing
11.	Report the types, characteristic features, structure and function of desert ecosystem.	2	Understanding
12.	What is ecosystem? Mention the structural and functional components of an ecosystem.	1	Remembering
13.	List out the types, characteristic features, structure and function of aquatic ecosystem.	1	Remembering
14.	i. Judge a field study of simple hill slopes ecosystems with its functions and components. ii. Evaluate the major causes of man-wild conflicts? Discuss the remedial steps that can curb the conflict.	5	Evaluating

Q. No	PART –C	BTL	Competence
1.	Describe the following i. Ecological succession. ii. Ecological pyramid.	2	Understanding
2.	Describe the structure and function of the desert and pond system.	2	Understanding
3.	Investigate the following i. Endangered species of India. ii. Endemic species of India.	6	Creating
4.	Describe India is a mega diversity nation. Explain in-situ and ex-situ conservation of biodiversity.	2	Understanding



UNIT – II: ENVIRONMENTAL POLLUTION			
Q. No	Part-A (2 Marks)	BTL	Competence
1.	Define pollution.	1	Remembering
2.	What is meant by air pollution?	1	Remembering
3.	Name any four air pollutants and their sources and effects.	2	Understanding
4.	Illustrate photochemical smog.	3	Applying
5.	Write a note on CFC.	3	Applying
6.	Mention the causes and effects of acid rain.	2	Understanding
7.	List out any four water quality parameters and their importance.	2	Understanding
8.	What are point and non-point sources of water pollution?	5	Evaluating
9.	Write any four major water pollutants.	3	Applying
10.	Distinguish between sewage and effluent.	4	Analyzing
11.	Define BOD and COD. Write its importance in environmental studies.	1	Remembering
12.	Define DO and give the environmental standard DO for drinking water.	1	Remembering
13.	Investigate the causes of soil pollution.	6	Creating
14.	Analyze the sources and effects of marine pollution.	4	Analyzing
15.	Clarify noise pollution.	2	Understanding
16.	Mention the measures to control thermal pollution caused by industries.	1	Remembering
17.	Write briefly how human activities can introduce thermal pollution into streams.	6	Creating
18.	Describe solid waste.	1	Remembering
19.	Define the term ‘Tsunami’	2	Understanding
20.	Differentiate pollution prevention and pollution control.	4	Analyzing

Q. No	PART –B	BTL	Competence
1.	i. Enumerate the sources and control measures of air pollution. ii. Give the classification of air pollutants and find the common air pollutant sources present in the atmosphere.	3	Applying
2.	i. Write a flow sheet and explain the steps involved in solid waste management.	2	Understanding



	ii. Write a short note on land filling methods for solid wastes.		
3.	i. Write informative notes on water treatment process. ii. Suggest the methods to control water pollution.	3	Applying
4.	i. State how acid rain is formed and what are the adverse effects on environment. ii. Enumerate the sources and removal of heavy metals.	1	Remembering
5.	Discuss about acid rain, ozone layer, smog, PAN.	2	Understanding
6.	i. Enumerate with example the major sources of water pollution ii. Describe the method of waste water treatment.	1	Remembering
7.	Briefly describe the sources, effects and prevention of soil pollution.	1	Remembering
8.	Give a comparative account of urban and industrial waste in terms of their sources, characteristics and management and disposal methods.	4	Analyzing
9.	i. Explain the ill effects of marine pollution with the help of a case study. ii. Explain the effects of oil pollution in oceans.	6	Creating
10.	i. Discuss various sources of marine pollution ii. How can you prevent pollution of our oceans?	2	Understanding
11.	i. What are the sources of thermal pollution? Explain its effects and controlling measures. ii. Examine the characteristics of hazardous and non-hazardous waste and explain the ill effects of hazardous waste how do you manage them?	5	Evaluating
12.	List the sources, effects and control measures of noise pollution.	5	Evaluating
13.	Find the ways by which the radioactive wastes can be managed by listing its effects.	5	Evaluating
14.	What role an individual can play for prevention for pollution?	4	Analyzing

Q.No	PART –C	BTL	Competence
1.	i. What do you understand by ozone hole? What is the environmental impact of ozone depletion? ii. Explain in detail about global warming and greenhouse effect.	5	Evaluating
2.	Discuss a case study on any one of the environmental pollution.	2	Understanding
3.	Explain in detail about the role of an individual in prevention of pollution.	5	Evaluating
4.	Discuss a field study of local polluted site in an Urban area.	2	Understanding



UNIT – III: NATURAL RESOURCES			
Q. No	Part-A (2 Marks)	BTL	Competence
1.	What is mean by natural resources? list out its types.	1	Remembering
2.	Differentiate renewable and non-renewable energy resources.	4	Analyzing
3.	List out types of forest with an example	2	Understanding
4.	State the function of forests.	2	Understanding
5.	What are the ecological benefits of the forest?	1	Remembering
6.	Illustrate the economic and commercial importance of forest.	3	Applying
7.	Distinguish deforestation from forest degradation.	4	Analyzing
8.	Evaluate the environmental effects of extracting and using mineral resources.	5	Evaluating
9.	Define deforestation.	1	Remembering
10.	What is mean by overgrazing? accounts its impacts.	2	Understanding
11.	Explain the term water logging? State the reasons.	1	Remembering
12.	Differentiate flood and water logging.	4	Analyzing
13.	Define hydrological cycle with a triangle illustration	6	Creating
14.	Illustrate desertification?	3	Applying
15.	What are landslides? What are its harmful effects?	5	Evaluating
16.	Justify the term modern agriculture causes Blue baby syndrome.	5	Evaluating
17.	Explain soil erosion? How can it be controlled?	2	Understanding
18.	List out merits and demerits of Dams.	2	Understanding
19.	What did you understand from the term of drought?	4	Analyzing
20.	Explain any two conflicts over water confining to our nation?	1	Remembering

Q. No	PART –B	BTL	Competence
1	Discuss the effects of modern agriculture due to usage of fertilizers and pesticides.	2	Understanding
2.	Write in detail role of an individual in conservation of natural resources.	3	Applying
3	(i) List the impact of deforestation on the environment. (ii) Discuss the effects of timber extraction on forests and tribal people	2	Understanding
4.	(i) What are the benefits of dams and explain its problem in detail?	5	Evaluating



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	(ii) What is over utilization of water resources? Mention the remedial measures.		
5.	(i) Explain the environmental effects of extracting and using mineral resources (ii) Write informative note on modern agriculture	3	Applying
6.	(i) Describe the changes caused by agriculture and overgrazing? (ii) Explain how is wind energy harnessed? What are the advantages and limitation of wind energy?.	1	Remembering
7.	(i) Explain the evil effects of mining operation on the environment (ii) Write in brief about the adverse environmental effects of modern agriculture practices.	4	Analyzing
8.	Discuss different ways of harnessing solar energy? What are the advantages and limitation of solar energy?	6	Creating
9.	(i) List the major uses of forest. (7) (ii) How would you justify that ecological uses of forests surpass commercial uses? (6)	1	Remembering
10.	Briefly describe droughts and floods with respect to their occurrences and impacts.	1	Remembering
11.	Discuss the impact of land degradation and analyze the methods of controlling the land degradation.	2	Understanding
12.	(i) Explain the stages of desertification. (ii) Explain with a case study about the recent landslides and soil erosion in India	1	Remembering
13.	Explain about (i) Food Resources ii) Forest Resources.	4	Analyzing
14.	Explain the consequences of over drawing surface and ground water.	4	Analyzing

Q. No	PART –C	BTL	Competence
1.	Discuss about the renewable and non-renewable energy with examples	2	Understanding
2.	Why do conflicts occur over water? Explain with the help of case study?	4	Analyzing
3.	Discuss about the field study of local forest area to document environmental assets.	2	Understanding
4.	List out the methods by which an individual can protect various natural resources	4	Analyzing



UNIT – IV: SOCIAL ISSUES AND THE ENVIRONMENT

Q. No	Part-A (2 Marks)	BTL	Competence
1.	Explain the aims of sustainable development.	6	Creating
2.	What are the methods to create environmental awareness?	5	Evaluating
3.	Describe the advantages of rain water harvesting.	3	Remembering
4.	Examine the objectives of watershed management.	4	Remembering
5.	What are greenhouse gases?	1	Evaluating
6.	Define environmental audit.	1	Remembering
7.	Defend few drawbacks of pollution related acts.	5	Remembering
8.	List the four objectives for forest conservation act.	1	Remembering
9.	Discuss ISO 14000.	2	Understanding
10.	Compute at least four major environmental issues.	3	Applying
11.	Illustrate global warming.	3	Applying
12.	Criticize the cause of ozone hole.	4	Analyzing
13.	Explain how CFC is accumulated in the atmosphere.	4	Analyzing
14.	Discuss acid precipitation.	2	Understanding
15.	Write briefly about holocaust.	6	Creating
16.	Illustrate the objectives of public awareness.	3	Applying
17.	Explain acid rain in detail.	4	Analyzing
18.	List the objectives of the wild life protection act of 1972?	1	Remembering
19.	Evaluate the objectives of EIA.	5	Evaluating
20.	Explain how the ozone layer depletion takes place? Write its consequences.	2	Understanding

Q. No	PART –B	BTL	Competence
1	What is sustainable development? Explain its importance and sustainable development policies.	2	Understanding
2	i. Discuss the mechanism of ozone layer depletion? ii. What is rain water harvesting? Why it is necessary now-a-days?	1	Remembering
3	i. What is watershed management? Explain the factors affecting and the need for water shed management. ii. Discuss in detail about the water shed management techniques and its maintenance.	2	Understanding



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4	Illustrate the national policy on resettlement and rehabilitation for affected families.	3	Applying
5	i. Explain the major urban problems related to energy? ii. What is an NGO? Find and mention of its role in environmental protection.	6	Creating
6	Enumerate on environmental ethics.	5	Evaluating
7	i. Explain the effects of nuclear accidents with case studies. ii. Discuss various measures for wasteland reclamation.	5	Evaluating
8	What is consumerism? Discuss in detail about the over growing population and its effect on consumerism.	1	Remembering
9	List the laws that have been framed for environmental protection and mention the objectives for each act.	3	Applying
10	Why do we refer to Environment protection Act 1986 as an umbrella act? Discuss the major environment protection rules 1986.	4	Analyzing
11	i. Write about air (1981) and water (1974) act in detail. ii. Describe the silent features of wildlife protection act (1991) and forest (1980) act.	1	Remembering
12	i. What functions are performed by the central and state pollution control boards? ii. Explain the issues involved in the enforcement of environmental legislation.	1	Remembering
13	i. Describe about the nuclear accidents and holocaust. ii. Explain the sources of greenhouse gases in atmosphere.	4	Analyzing
14	i. Explain the phenomenon of greenhouse effect. What are its effects? ii. Explain the causes and effects of acid rain.	4	Analyzing

Q. No	PART –C	BTL	Competence
1.	List out the components of water shed management. What do you understand from the concept of sustainable development?	6	Creating
2.	State the important provisions in Environmental protection act, air act and water act.	1	Remembering
3.	Explain the reaction mechanism, causes and effects of (i) ozone layer depletion, and (ii) Acid rain	6	Creating
4.	Illustrate the resettlement and rehabilitation of people with the help of case studies.	1	Remembering



UNIT – V: HUMAN POPULATION AND THE ENVIRONMENT

Q. No	Part-A (2 Marks)	BTL	Competence
1.	Illustrate population explosion and population density.	3	Applying
2.	Explain the reasons behind the increased population growth in the less developed nations compared with developed nations?	4	Analyzing
3.	List the problems of population growth.	1	Remembering
4.	Define doubling time with reference to population growth.	1	Remembering
5.	What is population explosion?	1	Remembering
6.	Write its consequences of population explosion.	3	Applying
7.	What is HIV? Name the sources where they exist in human body.	2	Understanding
8.	Mention some ill effect of HIV and AIDS on the environment	4	Analyzing
9.	Write a note on value education.	6	Creating
10.	What is meant are major precaution to avoid AIDS	2	Understanding
11.	Summarize the sources of HIV infection?	2	Understanding
12.	Differentiate HIV and AIDS	4	Analyzing
13.	State population density.	1	Remembering
14.	What are the objectives of family welfare programmes	1	Remembering
15.	State the role of IT in environment	3	Applying
16.	List the effects of population explosion	1	Remembering
17.	Describe immigration and emigration.	2	Understanding
18.	Evaluate the objectives of public awareness.	5	Evaluating
19.	Explain how environment and human health are related.	6	Creating
20.	Select the special features of comprehensive programme on women and child welfare.	5	Evaluating

Q. No	PART –B	BTL	Competence
1.	Describe the major choices of family planning	1	Remembering
2.	i. Discuss the variation of population among nations. ii. Write the reason and effect of population explosion.	2	Understanding
3.	i. Evaluate the growth pattern of India's population? ii. Relate the connection between the environment and human health?	5	Evaluating



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4.	Explain the objectives of family welfare and Family planning.	4	Analyzing
5.	i. Describe the factors influencing the family size ii. Write explanatory note on women and child welfare	1	Remembering
6.	What is the universal declaration of Human Rights? What is its importance in achieving the goals of equity, justice and sustainability?	1	Remembering
7.	What is HIV? Explain the transmission of HIV and how can it be prevented.	6	Creating
8.	What are objectives and concept of value educating	2	Understanding
9.	Demonstrate elements of imparting value education and its types	3	Applying
10.	Discuss about role of information technology in environment and human health.	2	Understanding
11.	Enumerate the functions of Human rights	3	Applying
12.	Criticize the need and objectives and schemes of woman welfare.	4	Analyzing
13.	Explain the child welfare program.	4	Analyzing
14.	Describe the value education and Environment	1	Remembering

Q. No	PART –C	BTL	Competence
1.	Explain the role of IT in protection of environment and human health.	4	Analyzing
2.	Write short notes on i. Value education. ii. Declaration of human rights.	3	Applying
3.	Discuss the origin of HIV, modes of transmission, symptoms and control.	2	Understanding
4.	What is Population growth? Write its causes and character and Variation among the nation.	2	Understanding