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ENVIRONMENTAL STUDIES

B.E.V.A.E.-181

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Sample Preview of the Solved Sample Question Papers

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QUESTION PAPER

June – 2024

(Solved)

ENVIRONMENTAL STUDIES

B.E.V.A.E.-181

Time: 2 Hours] ***[Maximum Marks: 50***

Note : *All questions are compulsory. Each question has* ***four*** *alternatives,* ***one*** *of which is correct.*

Q. 1. Which one of the following is a natural environment?

(a) Crop fields *(b)* Sanctuaries
(c) Forest *(d)* Parks

Ans. *(c)* Forest.

Q. 2. Who developed the concept of 'Determinism'?

(a) Alexander Von Humboldt
(b) Lucien Febre
(c) Ellisworth Huntington
(d) Friedrich Ratzel

Ans. *(d)* Friedrich Ratzel.

Q. 3. Which of the following is not one of the seventeen Sustainable Development Goals?

(a) Climate action *(b)* Quality health care
(c) Quality education *(d)* Gender equality

Ans. *(a)* Climate action.

Q. 4. Life does not exist beyond_____metres above mean sea level.

(a) 9000 *(b)* 8000
(c) 7000 *(d)* 6000

Ans. *(a)* 9000.

Q. 5. Which one of the following is placed at trophic level V in an aquatic environment?

(a) Planktons *(b)* Small fish
(c) Large fish *(d)* Shark

Ans. *(d)* Shark.

Q. 6. The main reservoir of sulphur in the biosphere is:

(a) Soil and sediments *(b)* Atmosphere
(c) Ocean *(d)* Organisms

Ans. *(a)* Soil and sediments.

Q. 7. In ecological succession, the intermediate community stage is termed as:

(a) Grass community *(b)* Sere
(c) Moss stage *(d)* Organisms

Ans. *(b)* Sere.

Q. 8. Ant eaters, giant flying squirrels, and sloths are found in:

(a) Sub-tropical rain forest
(b) Tropical rain forest
(c) Temperate rain forest
(d) Temperate evergreen forest

Ans. *(b)* Tropical rain forest.

Q. 9. An estuary is a transitional zone representing:

(a) Vast area of saline water
(b) Small number of organisms
(c) Great productivity built on a large base
(d) Small variation in estuary's physical environment

Ans. *(a)* Vast area of saline water.

Q. 10. Which biome experiences intense heat and strong wind with a great desiccating action during the months of April and June?

(a) Grassland biome *(b)* Forest biome
(c) Desert biome *(d)* Tundra biome

Ans. *(c)* Desert biome.

Q. 11. Which of the following aquatic organism is found living at the bottom of the water mass?

(a) Benthos *(b)* Neuston
(c) Nekton *(d)* Periphyton

Ans. *(a)* Benthos.

Q. 12. Which of the following is a renewable resource?

(a) Coal *(b)* Petroleum
(c) Forest *(d)* Natural gas

Ans. *(c)* Forest.

Q. 13. The process by which solid water changes directly to vapour phase known as:

(a) Precipitation *(b)* Sublimation
(c) Evaporation *(d)* Transpiration

Ans. *(b)* Sublimation.

Q. 14. Which one of the following is not a traditional water management system in India?

(a) Johads
(b) Bamboo drip irrigation
(c) Sprinkler irrigation
(d) Kuls

Ans. *(c)* Sprinkler irrigation.

Q. 15. Which one of the following is not a measure to control soil erosion?

(a) Growing grass, shrubs and trees
(b) Formation of broad walls along the coast
(c) removing the bigger trees along the slope
(d) Construction of check dams

Ans. *(c)* Removing the bigger trees along the slope.

Q. 16. Which one of the following is an ecological significance of forest?

(a) Providing numerous life sustaining pharmaceutical products
(b) Wood and bamboo puls used for manufacturing of paper
(c) Checks soil erosion
(d) Supports livelihoods of many tribal communities

Ans. *(c)* Checks soil erosion.

Q. 17. Crown fire takes place in the:

(a) Thorn forest
(b) Savanna forest
(c) Forest in the hot and humid region
(d) Dense forest

Ans. *(d)* Dense forest.

Q. 18. Which of the following enables tribal and other forest dwellers?

(a) Forest Rights Act, 1986
(b) Forest Rights Act, 2006
(c) Forest Conservation Act, 1986
(d) Forest Conservation Act, 1988

Ans. *(b)* Forest Rights Act, 2006.

Q. 19. Hotspots are regions of:

(a) High endemism
(b) Less species richness
(c) Less diversity
(d) Not under constant threat

Ans. *(a)* High endemism.

Q. 20. Which of the following has the maximum genetic diversity in India?

(a) Tea *(b)* Mango
(c) Teak *(d)* Wheat

Ans. *(b)* Mango.

Q. 21. Which one of the following is a use value of biodiversity?

(a) Optional value *(b)* Bequest value
(c) Existence value *(d)* Aesthetic value

Ans. *(d)* Aesthetic value.

Q. 22. Which one of the following statement about biological diversity in India is not correct?

(a) India is one of the 12 centres of origin of cultivated plants
(b) India has 12 biogeographical regions
(c) Four biodiversity hotspots are found in India and its neighbouring countries
(d) India has 26 recognised endemism centres

Ans. *(b)* India has 12 biogeographical regions.

Q. 23. Which one of the following is a non-conventional source of energy?

(a) Coal *(b)* Natural gas
(c) Wind energy *(d)* Atomic energy

Ans. *(c)* Wind energy.

Q. 24. Use of non-conventional sources of energy is:

(a) Pollution free
(b) Cheap
(c) Both cheap and pollution free
(d) Neither cheap nor pollution free

Ans. *(c)* Both cheap and pollution free.

Q. 25. The most suitable fuel for a fuel cell is:

(a) Hydrogen *(b)* Nitrogen
(c) Water *(d)* Carbon dioxide

Ans. *(a)* Hydrogen.

Q. 26. 'Sludge gas' largely consists of:

(a) Carbon dioxide
(b) Sulphur dioxide
(c) Hydrogen sulphide
(d) Methane

Ans. *(d)* Methane.

Q. 27. Artificial insemination is useful for:

(a) Ducks *(b)* Elephants
(c) Snakes *(d)* Lizards

Ans. *(b)* Elephants.

Q. 28. Fostering as a conservation technique is found successful in:

(a) Whooping crane *(b)* Black footed ferret
(c) Angus cow *(d)* Seed plants

Ans. *(a)* Whooping crane.

Q. 29. Mangrove in the coastal area work against erosion by acting as:

(a) Natural filters
(b) Regulator of water
(c) Natural bulwark
(d) Natural recharging aquifers

Ans. *(c)* Natural bulwark.

Q. 30. In MAB programme run by UNESCO, MAB stands for:

(a) Man and Biosphere
(b) Man and Biome
(c) Mankind and Biodiversity
(d) Mankind and Biomes

Ans. *(a)* Man and Biosphere.

Q. 31. Which one of the following chemical is associated with Bhopal gas tragedy?

(a) Methyl Isocyanide
(b) Chlorofluorcarbon
(c) Carbon monoxide
(d) Methane

Ans. *(a)* Methyl Isocyanide.

Q. 32. Which one of the following is a measure of oxygen used by bacteria to decompose the organic matter?

Sample Preview of The Chapter

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ENVIRONMENTAL STUDIES

Our Environment

1

INTRODUCTION

Earth is a vast planet which supports life in a thin layer covering it, called biosphere. The Sun provides energy required for the interaction among different forms of life. Sun is the only source of energy which enables continuous interaction among various life forms. Since long, human beings and the nature have a symbiotic (interdependent) relationship which is now changing, mainly because of overexploitation of natural resources by human beings in order to meet their increasing demands. Human beings have considered the earth and environment as an unlimited source but it is not so and our environment has been changing in different ways, particularly during the last few years, mainly since the industrial revolution. These unsustainable practices are now endangering the lives of a large population. It is, therefore, very important that awareness must be created among all the stakeholders about the risks involved in these practices. Environment includes the natural world, everything around us including land, air, water in which people, animals and plants live. Study of our environment informs us about the importance of its protection and conservation. Sustainable development basically means development which meets the needs of the present without compromising the ability of the future generations to meet their needs.

CHAPTER AT A GLANCE

CONCEPT OF ENVIRONMENT

The word environment comes from French word environ (to surround) and the term environment means the natural world around in which people, plants and animals live. It is the sum of living and non-living components and powers which surround an organism. Every living organism effects and is effected by its surroundings, gets support from it and gets familiarized with it. These surroundings constitute the natural environment which includes light, soil, water, desert, mountains, etc. and can be explained in terms of physical (abiotic) influences like differences in temperature, moisture, temperature, quality of soil and air, etc. It also includes biotic influences which are caused by living organisms like animals, plants, trees, bacteria, etc.

Environment affects the life of an organism by the interaction of environmental elements. Every organism lives by interacting with other organisms. All animals depend upon plants, directly or indirectly. The green plants prepare their own food. Similarly, plants also depend on animals in some respects such as pollination of flowers, dispersal of seeds, etc. The environment of a fish in a pond of water includes light, temperature and water with dissolved nutrients, oxygen, other gases, etc. Its biotic environment consists of planktons, watery plants, animals and decomposers.

COMPONENTS AND TYPES OF ENVIRONMENT

Components of Environment: The environment includes abiotic (non-living) and biotic (living) parts. The abiotic parts include light, humidity, precipitation, water, temperature, gases, topography, etc. The biotic parts include humans, animals, plants, decomposers, etc. The physical components are necessary for the survival of the biotic components and they maintain the environment. Green plants get their essential resources for preparing their food from water and minerals from the soil, carbon dioxide from atmosphere and the sunlight. Similarly, animals depend on plants and other animals for their food and humans engage in agriculture activities and obtain minerals and fuel from the earth.

Types of Environment: The external environment of the fish is the water in the pond in which it lives. The water contains nutrients, oxygen and other organisms which are needed by the fish to live. The internal environment of the fish is quite different from its external environment. Its body surface separates its internal environment from the external environment. The pond wherein the fish lives constitutes its natural environment and the aboitic factors provide it with the life support chemicals and physical factors. There

are many other living organism in the pond which include bacteria, insects, worms, frogs and aquatic vegetation may provide food to the fish. On the land, the natural environment includes forests, grasslands and deserts, etc. Also, there are other components of the natural environment that are created artificially by human beings which include cities, factories, crop fields, etc.

Significance of the Environment for Life: Organisms require life supporting elements to survive, which include air to breathe, food and water to consume, home to live in. Such homes may be natural or artificial. Land is used for cultivating the crops and soil gives nutrients for the growth of plants. Different soils have different properties. Wind, temperature and rainfall, etc., constitute the climate which is determined by the atmosphere. Atmospheric air provides oxygen for the living organisms, without which they cannot live.

HUMAN-ENVIRONMENT RELATIONSHIP

Historically, those human beings survive who get adapted to the environmental conditions and those who could not adjust, perished. This applies to the plants and animals also. With the growth of human civilization, people obtained the skills and technology to control the nature, mainly after the Industrial revolution. Although these provide comfort to the human beings, yet, these have led to irreparable damage to the environment and have threatened the very survival of human beings and the planet earth. This emphasizes the need for having a balance between development and protection of environment and there comes the concept of sustainable development. The different approaches to the human-environment relationship are as under:

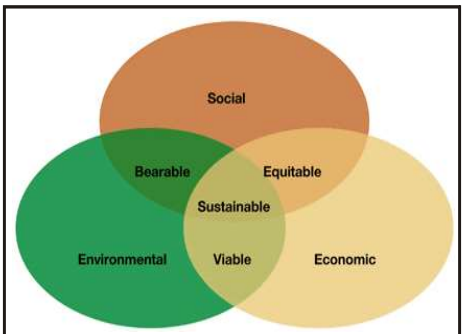
Determinism: This approach states that the physical environment controls all the aspects of the human life such as their health and well-being, social, economic, political environment, etc. This was developed by German Geographer Friedrich Ratzel and expanded by Ellsworth Huntington. As per this approach, human being is largely influenced by nature.

Possibilism: According to this approach, man has been able to change the environment by enhancing his capacity to meet its demands. It indicates that the physical environment is passive and human beings are active agents who can choose between the different environmental possibilities. The development of human activity is due to the initiative and mobility of human beings who work within the natural framework. Yet, the possibilists agree that human beings cannot fully control the nature and cannot always win over it and there has to be a mutual interaction between the environment and the human beings.

Environmentalism or Ecological Approach: This approach is reflected in the concept of sustainable development. It is based upon the basic principle of ecology and it studies the mutual interaction between organisms and physical environment on the one hand, and the interaction among the organisms on the other hand. It describes human beings as integral part of the environment, who are skilled and intelligent and have a role in the maintenance of a healthy and productive natural environment. The approach lays its emphasis on a wise use of the natural resources and on the application of appropriate environmental management programmes and policies after considering the basic principles of ecology, in a way so as to replenish the already depleted natural resources, thereby restoring the health and productivity of the nature.

CONCEPT OF SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

Sustainable Development is the development which meets the needs of the society without compromising the ability of our future generations to meet their own needs (the World Commission on Environment and Development-WCED). An ecological economist, Herman Daly mentioned sustainable development as an oxymoron (a phrase combining two contradictory terms such as bitter sweet). Sustainability means the ability to be maintained at a certain level, the capacity to continue. So, it means a process which can be continued indefinitely (without depleting the resource base). Sustainable development has emerged as an alternative model of development which is now well accepted both at International and National levels. Three disciplines economics, sociology and ecology, were traditionally concerned with the processes involved in sustainable development. Economics is concerned with growth, efficiency and optimum use of resources, sociologists focus on human needs, equity, empowerment, etc. and ecologists express their concerns for preserving the natural systems and for reducing environmental pollution. It is now being argued that sustainable development is achieved when the concerns of these three groups are addressed as a whole, not in parts.



Three Pillars of Sustainable Development

But as an ideal, sustainable development is yet to be adopted properly in the present day societies. Still, it is very important to support sustainable development as an ideal and a goal towards which all human societies should move. There are policies to promote family planning, improve air quality, provision of potable water, preserve our natural ecosystems, reducing soil erosion, etc., which help the society in moving towards a sustainable future. In order to achieve this objective, some essential transitions needed for making future societies which include a demographic transition from a growing population to stable one, resource transition concerned with growth and protecting the ecosystem and preventing its depletion, technological transition towards making environment friendly processes and political/sociological transition.

The following are some of the priority areas for achieving Sustainable Development:

- Priority areas can be addressed well by slowing down population growth;
- To prevent loss of species, water pollution and land degradation there should be efforts for improving health and longevity, reducing poverty and inequality;
- To prevent loss of biodiversity, land degradation and pollution, we should adopt methods to make agriculture sustainable, reduce soil erosion and decrease harmful practices;
- Protecting forests and other habitats by reforestation/afforestation of wastelands,
- Using improved energy efficient methods, conserving energy and developing renewable energy resources for reducing air pollution, land degradation, depletion of energy, etc.
- Improving the efficiency of water use and protecting water quality.
- Initiating methods for reducing waste generation by improving production processes, waste treatment and recycling.

MULTIDISCIPLINARY NATURE OF THE ENVIRONMENTAL STUDIES

There are different ways in which our environments effects us, like water for our consumption, the air for breathing, the climatic to live in and all our surrounding. The living organisms generally maintain a balance with environment but the human beings, with the help of their skills and technology, have made the environment personal according to their needs. While doing so, we have disrupted the fragile life supporting systems.

Environmental studies are mainly concerned with the knowledge that deals with the concerns which have an effect on the living beings. It is a study of the inherent or induced changes in the environment and deals with the concerns which affect an organism. It is an applied science which makes human civilization sustainable on the earth amidst the limited resources. It includes the study of physical and biological environment, the economic, social, cultural and political and legal aspects concerning the environment. Under environmental studies, we can study issues concerning safe drinking water, clean air, clean living conditions, productive land, quality food, sustainable development, etc. The future of mankind depends to a great extent on sustainable development. Pollution, deforestation, biodiversity, solid waste disposal, global warming, climate changes, the depletion of ozone layer, etc., have created awareness about the environmental issues. The UN Conference on Environment and Development of 1992, the World Summit on Sustainable Development in 2002 and adoption of the 17 Sustainable Development Goals in 2015 (to be achieved by 2016-2030) by the UN have attracted the attention of people of the world towards the deteriorating environment.

The following are the Seventeen Sustainable Development Goals:

1. No poverty, **2.** Zero hunger, **3.** Good Health, **4.** Quality education, **5.** Gender equality, **6.** Clean water, **7.** Affordable and clean energy, **8.** Economic growth, **9.** Industry, innovation and infrastructure, **10.** Reduced inequalities, **11.** Sustainable cities and communities, **12.** Responsible consumption and production, **13.** Climate action, **14.** Life below water, **15.** Life on land, **16.** Peace, justice and strong institution, **17.** Partnership for the goals.

Due to destruction of habitats, over-use of resources and environmental pollution, a large number of life forms have been lost and it is feared that a large proportion of life on earth may get wiped out soon. There are about 1.7 million living organisms which have been described and globally named, yet many more are still to be identified. Efforts are made to conserve them in *ex-situ* (outside natural habitat) and *in-situ* (within natural habitat).

IMPORTANCE OF ENVIRONMENTAL STUDIES

Environment studies discuss about the importance of protection and conservation of the environment. Major environmental issues are:

- Environmental issues such as global warming, climate change, ozone layer depletion and loss of biodiversity, etc.
- With the development, industrialisation, urbanization, etc., the challenge lies in developing without environmental degradation.
- There is a heavy pressure on the natural resources, for which an efficient management of natural resources is needed so that each one benefits.

- Another issue is about the need for looking for alternative ways for achieving growth, which aim to conserve scarce natural resources.
- All developmental actions must be properly planned to ensure sustenance of environment.

SELF-ASSESSMENT QUESTIONS

Q. 1. Describe the significance of physical components in an environment.

Ans. The physical components in the environment include light, soil, water, air, desert, mountains, etc., and these are essential for the survival the biotic components human beings, animals, plants and decomposers, etc.

Q. 2. Explain in brief the significance of the environment for life.

Ans. Environment provides life supporting elements to survive, which include air to breathe, food and water to consume, home to live in. Land is used for cultivating crops and soil gives nutrients for the growth of plants. Wind, temperature and rainfall, etc., constitute the climate which is determined by atmosphere.

Q. 3. Fill in the blanks with suitable words:

(i) The approach of determinism is based on the concept of ..... or .....

(ii) Possibilism indicates that the physical environment ..... and human being is the ..... at liberty to choose between wide ranges of environmental possibilities.

(iii) Environmentalism emphasizes on ..... and ..... use of natural resources.

Ans. *(i)* nature controls humans; earth made humans, *(ii)* is passive; active agent, *(iii)* wise; restrained.

Q. 4. Define the term ''Sustainability''.

Ans. Sustainability is the ability to maintain at a certain rate or level and the capacity to continue. It is the process which can be continued indefinitely without depleting the resource base.

Q. 5. Why is it important to uphold sustainable development as an ideal?

Ans. It is very important to uphold sustainable development as an ideal because it is the goal toward which all human societies should move. Policies including those to promote family planning, to improve air quality, to provide for clean potable water, etc., surely help human societies to move forward in the direction of a sustainable future.

Q. 6. Differentiate between *in-situ* and *ex-situ* conservation.

Ans. A large number of life forms have been lost due to destruction of habitats and environmental pollution. It is also feared that a large proportion of life on earth may get wiped out soon. Therefore, efforts are made to conserve them in *ex-situ* and *in-situ*. *In-situ means* conserving in the natural habitat situations and *ex-situ* means to conserve outside the natural habitat.

Q. 7. What should be kept in mind while planning for alternative solution in developing countries for the sustenance of environment and development?

Ans. Among the major issues concerning sustenance of environment and development, there is a need for looking at alternative ways for achieving growth by conserving scarce natural resources. In this context, it is important that while planning for alternative solutions for the developing countries, these should be clearly different from those relating to the developed world.

TERMINAL QUESTIONS

Q. 1. What is environment? Explain various components of environment with suitable examples.

Ans. The word environment comes from French word environ (to surround). Environment means the natural world around which the people, animals and plants live. Living organisms themselves effect and are also affected by their surroundings. These surroundings are constituted by their natural environment which includes light, soil, water, desert, mountains, etc. So, it can be said that environment is the sum total of living and non-living components and powers which surround an organism. Each human being has different environments including home environment, office environment, social environment, etc. There are two components of environment biotic and abiotic. Biotic components include all living organisms whereas abiotic component includes non-living things. Every organism lives by interacting with other organisms. All animals depend upon plants, directly or indirectly. The green plants prepare their own food. Similarly, plants also depend on animals in some respects such as pollination of flowers, dispersal of seeds, etc. The environment of a fish in a pond of water includes light, temperature and water with dissolved nutrients, oxygen, other gases, etc.

Components of Environment: The environment includes abiotic (non-living) and biotic (living) parts. The abiotic parts include light, humidity, precipitation, water, temperature, gases, topography, etc. The biotic parts include humans, animals, plants, decomposers, etc. The physical components are necessary for the survival of the biotic components and they maintain the environment. This linking of components of environment makes way for the flow of energy and cycling of materials. The green plants prepare their food by taking essential resources from water and minerals in the soil, carbon dioxide from atmosphere