

UNIT – 5

HUMAN COMMUNITIES AND THE ENVIRONMENT

A. Very short type questions and answers. (1 mark each)

Q1. Define population.

Ans: Population can be defined as the no. of individuals of the same species that live in a particular geographic area at the same time, with the capability of interbreeding among themselves.

Q2. Which is the most populous country in the world?

Ans: China.

Q3. What type of population growth curve is observed in humans?

Ans: Sigmoid Curve.

Q4. What is resettlement?

Ans: Resettlement is the process of moving people to a different place to live as they can no longer stay in the area where used to live, either due to natural factors viz. calamities or Human intervention viz. govt. projects like const. of dams, mining operation, etc.

Q5. What do you mean by Exponential growth?

Ans: Exponential growth refers to the growth involving two phases; the lag phase and the exponential phase, which result in J-shaped growth curve. This type of growth is observed in few organisms like bacteria, virus, and some plants.

Q6. What do you mean by logistic growth?

Ans: Logistic growth refers to the growth involving three phases; the lag phase, the lag phase and the steady phase, which result into a sigmoid/S-shaped growth curve. This type of curve is observed in most of the species including humans.

Q7. What is the percentage increase in Global population growth?

Ans: Thirty (30).

Q8. What is the total human population of the world by 2018?

Ans: 7.6 billion.

Q9. What is the full form of ICDS & BSY?

Ans: ICDS → Integrated Child Development Services.

BSY → Balika Samriddhi Yojana.

Q10. On which river Hirakud Dam was constructed?

Ans: River Mahanadi.

B. Short type questions and answers. (2 marks each)**Q1. What are the major initiatives undertaken by the govt. for woman and child development?**

Ans: The department of Woman and Child development was set up in the year 1985 as a part of the ministry of human resources development to give the much needed impetus to the holistic development of woman and children.

The department formulates plans, policies and programs. Enact/amends legislation, guide and coordinate the efforts of both governmental and non-governmental organization working in the field of woman and child development.

Q2. How human population growth has seriously affected the biodiversity?

Ans: With the increasing human population, the region of forest cover started minimizing, the demand and supply ratio got imbalanced. More land is utilized for their settlement, thereby affecting the forest cover. Various anthropogenic activities like farming, industrialization, const. of dams, mining operations, etc. to meet their demands have led to the destruction of habitats of variety of living organisms along with generation of pollutants which in turn contribute to various types of pollution, thus affecting the environment making it unfavorable to live which in turn results in the loss of biodiversity. Illegal hunting, smuggling, hunting for enter animals, etc. has also contributed to the loss of biodiversity.

Q3. What do you mean by disaster management?

Ans: Disaster management can be defined as the management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, to response and recovery in order to lessen the impact of disasters. Disaster management deals with various phenomena like earthquakes, landslides, volcanic eruptions, floods, hurricanes, tornadoes, tsunamis, cyclones, etc. before and after the disaster impacts. The natural hazards kill thousands of people and destroy billions of dollars of habitat and property each year. The task of the disaster management organization is to minimize these losses.

Q4. What do you mean by environmental ethics?

Ans: Environmental ethics refers to the moral principles that try to entrust one's responsibility towards environment. It considers the ethical relationship between human beings and the natural environment. The academic field of environmental ethic grew up in the response to the work of scientists such as Rachel Carson and events such as the first earth day in 1970, when environmentalists started urging philosophers to consider the philosophical aspects of environmental problems.

Environmental ethic is the part of environmental philosophy which considers extending the traditional boundaries of ethics from solely including humans to including non-human world.

Q5. What do you mean by environmental movement?

Ans: An environmental movement can be defined as a social or political movement, for the conservation environment or for the improvement of the state of the environment. The term "green movement" or "conservation movement" are alternatively used to denote the same.

The environment movements favor the sustainable of natural resources. The movement often stresses the protection of the environment via changes in public policy. Many movements are centered on ecology, health and human rights. Environmental movements range from the highly organized and formally institutionalized ones to the radically informal activities.

Q6. Write a brief note on Hinduism on environmental conservation.

Ans: The practitioners and scholars of Hinduism find traditional approaches to the natural environment in such concepts as dharmic ethic or prakriti. The development of Ayurveda and readings of vedic literature created the foundation of environmental conservation. Emphasis has been laid on the importance of plants, animal, microbes, and energy components of environments, their interrelationship and the importance for their conservation. The images of various gods and goddesses are seen have variety of animals related to them which in turn helps in the conservation, prevention and protection of the plant species indirectly thus providing a helping hand in the environmental conservation.

Hinduism contains numerous references to the worship of the divine in nature in its Vedas, Upanishads, Puranas, Sutras and its other sacred texts. Hindus recite Sanskrit mantras to revere the rivers, mountains, trees, animals and earth. The Hindu teachings on environment viz. Pancha mahabhutas (The five great elements) create a web of life that is shown forth in the structure and interconnectedness of the cosmos and the human body, Ishavasyam-Divinity is omnipresent and takes infinite forms, protecting the environment is a part of Dharma, the earth-is a goddess and our mother

and deserves our devotion and protection, ahimsa is the greatest dharma, and many more in respect of the conservation of the environment.

Q7. Write a brief note on Buddhism in environmental conservation.

Ans: Buddhism idealizes and emphasizes interconnection, thereby resting a mindset that created a productive and cooperative relationship between humans and nature. That all action based on the premise of interconnection makes the Buddhists mindset effective in cultivating modesty, compassion and balance among followers, which may ultimately mitigate the harm done to the environment. One benefit of the Buddhist interconnected mindset is the inevitable humility that ensues. Because humans are entwined with natural system, damage done upon the earth is also directly/indirectly harm done the humans.

Another benefit of Buddhists practice to the environment is the compassion that drives all thinking. When humans realize that they are all connected to the environment, harm done to another will never benefit the initiator, than it will provide a helping hand in environmental conservation.

Q8. Write a brief note on Christianity in environmental conservation?

Ans: The foundation of Christian environment ethics is the principle of creation value, the principle of sustained order and purpose, and the principle of universal corruption and Redemption.

The principle of creation value recognizes that god created heavens and earth and all things found therein. The principle of sustained and purpose implies that god originally created all elements of nature to fit and function together in an orderly fashion within interrelated systems to meet certain ongoing purposes. The principle of universal corruption and redemption states that all of creation has been corrupted by sin. Nature provides beneficial services to the people, but if we sin, nature can also be source of physical harm to the people caused by tornadoes and hurricanes.

In the biblical incident of Noah's Ark, the beautiful natural rainbow is God's sign and remainder of his agreement with Noah not to destroy life on earth again with a great flood. According to the religious scriptures, Noah was instructed by god to build a wooden ship (Ark) and bring a male and female of every species on earth into the ship in order to save the devastating floods and prevail their existence on earth.

Q9. Write a brief note on Islam in environmental conservation.

Ans: In Islamic view of nature believes that nature stands as a sign of god's creation and hence all deserve attention and consideration. Islam believes that every human should treat all creatures with compassion as they will be responsible on the Day of Judgment on how they treated these creatures.

According to Islam, Allah bestowed all the resources of nature which all human bring required in order to fulfill their objectives. Thus, the utilization of these resources such as water, land, forests, minerals, etc. is the right and privilege of all people and all species. The Islam believes that man is a mere manager of the earth and not a proprietor. Islamic principle thus envisage the protection and conservation of basic natural elements, making protection, conservation and sustainable development of the environment and natural resources a mandatory religious duty of every Muslim.

Q10. What do you mean by environmental communication?

Ans: Environment communication can be defined as the study and practice of how individuals, institutions and society distribute, receive, understand and use messages about the environment and human interactions with the environment. This includes a wide range of possible interactions, from interpersonal communication to participatory decision making and environmental media coverage.

As an academic field, environmental communication from interdisciplinary work involving communication, environmental studies, environmental science, risk analysis and management, sociology and political ecology.

C. Broad type question and answer. (5 marks each)

Q1. Describe population growth curves with illustration.

Ans: The growth is one of the dynamic features of species in a population. Population size increases in a characteristic way. When the no. of individuals of population is plotted on the y-axis and the times on the x-axis, a curve is obtained that indicates the trend in the growth of population size in a given time. This results into a population growth curve.

There are two types of growth curves:

- i. **The J-shaped curve:** The J-shaped curve represents the exponential growth and is observed in few organisms like bacteria, virus and some plants.

Here, in the first phase, there is no increase in population size because it needs some time to adjustment in the new environment. Soon after the population is established in the new environment, it starts multiplying rapidly. This increase in population is continued till large amount of food material exists in the habitat. After some time, due to increase in population size, food supply in the habitat becomes limited which ultimately results in abrupt decrease in population size. The curve shows two phases (Lag phase and exponential phase), which result in J-shaped growth curve.

- ii. **The S-shaped/sigmoid curve:** The s-shaped curve represents the logistic growth and is observed in most species including humans.

When a few organisms are introduced in an area, the population increase is very slow in the beginning (positive acceleration phase or lag phase), followed by rapid population increase (negative acceleration phase) and finally slowing down of population increase (negative acceleration phase) until an equilibrium is obtained. The level beyond which no major increase can occurred is referred to as saturation level or carrying capacity. In the last phase, the new organisms are almost equal to the no. of dying individuals and thus there is no increase in population size. This results into a sigmoid and s-shaped growth curve.

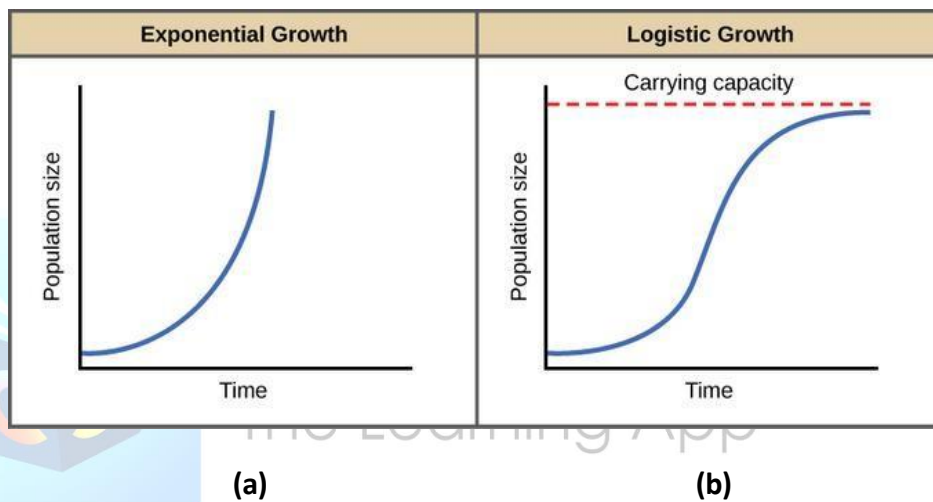


Fig. Population growth curves: (a) J-shaped curve (b) S-shaped curve

Q2. Describe the impact of human population growth on environment.

Ans: Some of the impacts of human population growth on environment are as follows:

- Waste generation:** Growth of human population has generated more and more waste, which are dumped into the environment, of which not all are biodegradable. The non-biodegradable waste remains in the environment to absorb more waste. These waste leads to soil, air and water pollution.
- Loss of Biodiversity:** The growth of human population has seriously affected the forest cover through extension of human locality, roads industrialization, etc. the habitat of wildlife is thus minimized and there occurs and serious treats to their survival, which may result into huge loss of Biodiversity.
- Urbanization:** Rapid growth of population has led to urbanization, which has adversely affected environment. Some of the concerns include depletion of natural resources, clearing of forest cover, increase in demands, etc.

- iv. **Industrialization:** Heavy industrialization is causing environmental degradation. The establishment of industries requires clearing of land which results into loss of vegetation cover. Industries like oil refineries, iron & steel industries, chemical industries, fertilizer industries etc. have led to land, soil, air, water pollutions to a large extent.
- v. **Land degradation:** Intensive farming, excessive use of fertilizer & pesticides have led to overexploitation of land resources, which resulted in soil erosion, water logging, salination, etc.
- vi. **Climate change:** The release of Green House gases, are on the rise due to increase in human population growth. The direct effect of which is the rise in the global temperature i.e. Global warming. Factors like deforestation, release of green-house gases, etc. contributes to the change of climate which affects the environment.

Q3. Write a note on Human health & Family welfare.

Ans: Each country has some programmes to take care of human health. Specific programmes are there for family welfare. India has launched the National Family Welfare Programme in the year 1951 with the objective of reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the national economy.

The Department of Women & Child Development was set up in the year 1985 as a part of the Ministry of Human Resource Development to give the much needed impetus to the holistic development of women and children. This department formulates plans, policies and programmes, enacts/amends legislation, guides and coordinates the efforts of both governmental and non-governmental organizations working in the field of women and child development.

Q4. Describe the Sardar Sarovar Project and its follow ups?

Ans: The Sardar Sarovar Project, started in the year 1987 was a government's ambitious plan of creating more than 3000 large and small dams. The project included construction of a high dam on the Narmada river, the creation of reservoir submerging land in the states of Gujarat, Maharastra and Madhya Pradesh, and an extensive canal & irrigation system in Gujarat, that is likely to displace 1,00,000 people residing in 245 villages of the aforesaid states.

The Narmada Bachao Andolan, a Non-Governmental organization, with its leading spokesperson, Medha Patkar & Baba Amte (recipient of Right Livelihood Award in 1991) advocated the issue relentlessly and raised the issues of the resettlement & rehabilitation of the people displaced due to the multi-purpose river valley project.

A study by Garikipati (2002) in the resettled sites of Gujarat reported that although the displaced population has been resettled and the new resettled sites had been provided the amenities of water, electricity, school, roads, etc. 96% of the households felt that their life have deteriorated after relocation, the reason being the degraded quality of agricultural land & condition of other amenities at the resettlement sites. There appears to be a mismatch between the government resettlement and actual reporting of the people.

Q5. Describe the mitigation strategies for flood and earthquake.

Ans: The mitigation strategies for flood and earthquake are as follows:

A. FLOOD MITIGATION STRATEGIES

- i. Watercourses which pass through significant settlement areas should be properly configured.
- ii. Buildings constructed adjacent to watercourses should be elevated at least one meter to prevent further flood inundations.
- iii. Critical facilities viz. hospitals, power stations, etc. should not be located adjacent to watercourses.
- iv. Proper study of an area should be carried out before construction of heavy infrastructures like dams, canals, etc.
- v. Proper drainage system should be ensured to minimize the effects of flood.

B. EARTHQUAKE MITIGATION STRATEGIES

- i. Existing critical facilities on reclaimed land should be inspected & retrofitted if necessary to ensure earthquake safety.
- ii. Further critical facilities should not be located on reclaimed land because of high potential of liquefaction.
- iii. Older unreinforced masonry buildings should be inspected and retrofitted if necessary to increase earthquake resistance.
- iv. Older unreinforced masonry buildings should not be used for critical functions.
- v. Buildings and heavy infrastructures should be constructed with earthquake-proof materials.

Q6. Describe the mitigation strategies for cyclone and Landslide.

Ans: The mitigation strategies for cyclone and landslides are as follows:

A. CYCLONE MITIGATES STRATEGIES

- i. Critical facilities viz. hospitals, power stations, etc. should not be located in areas of accelerated winds.

- ii. The roof of existing buildings should be inspected and if necessary retrofitted to adequate standards, as the high velocity wind causes maximum roof damages.
- iii. Planting of trees around a locality helps in disintegrating/diverting the wind velocity and direction.
- iv. The opening of building such as doors and windows should be protected with shutters or covers of adequate designs, as high velocity wind damages them.
- v. Preparatory measures are taken beforehand for tackling such consequences to deal with the aftereffects.

B. LANDSLIDES MITIGATION STRATEGIES

- i. Geometric methods are applied, in which the geometry of the hillsides is changed, particularly the landslide prone slope.
- ii. Hydrological methods are applied, in which an attempt is made to lower the groundwater level or to reduce the water content of the material.
- iii. Chemical and mechanical methods are applied, in which attempts are made to increase the shear strength of the unstable mass or to introduce active external force to counteract the disabling forces.
- iv. Total avoidance of the landslide hazard areas or restriction on hazard zone activities is an effective method to minimize hazard.
- v. Defensive walls are constructed to obstruct the flow of sliding land in order to reduce its effect.

Q7. Describe the Chipko Movement.

Ans: The Chipko Movement was started in the 1973 in the Chamoli districts of Uttarakhand. It later spread into the neighboring district of Tehri-Gharwal. This movement was initiated by Sundarlal Bahuguna. Other leaders of this movement are Gaura Devi, Suresha Devi, Bachni Devi, Chandi Preshad Bhatt, Govind Singh Rawat, Dhoom Singh Negi, Samsher Singh Bisht and Ghamsyam Raturi.

The main objective was to protect the trees of the Himalayan slopes from the axes of contractors. Sundarlal Bahuguna enlightened the villagers by stating the importance of trees in the environment which checks the erosion of soil, causes rain and provides pure air. The women of Advani village of Tehri-Gharwal tied a sacred thread around trunks of trees and hugged the tree, hence it was called Chipko (Hugging) movement.

The Chipko Movement of 1973 was organized by the Dasoli Gram Swarajya Mandal (DGSM) in Gopeshwar, Chamoli districts of Uttarakhand. The main demand of the people was that the benefit of the forest products should go to local people. The Chipko Movement gathered momentum in 1978, after which the state's Chief

Minister, Shri. Hemwati Nandan Bahuguna set up a committee to look into the matter, which eventually ruled in favor of villagers. This became the turning point in the history of eco-development struggles in the region and around the world.

Q8. Describe the Silent valley movement.

Ans: The Silent valley movement was started in the year 1978 in the Palakkad district of Kerala. India. The Kerala Sastra Sahitya Parishad (KSSP), an NGO and the poet-activist Sughathakumari played an important role in the silent valley protests.

The main objective of the silent valley movement was to protect the moist evergreen forest of the silent valley from being destroyed by a hydroelectric project. The Kerala State Electricity Board (KSEB) proposed a hydroelectric dam across the Kuntipuzha River that runs through the Silent Valley. In February 1973, the planning commission approved the hydroelectric project at a cost of about Rs.25 crores. Many feared that the project would submerge 8.3 sq. km of untouched moist evergreen forest. Several NGOs strongly opposed the project and urged that the government should abandon it.

In January 1981, bowing the unrelenting public pressure, the then Prime Minister of India, Smt. Indira Gandhi declared that silent valley will be protected. In June 1983, the center re-examined the issue through a commission chaired by prof. M.G.K Menon.

In November 1983, the Silent valley hydroelectric project was called off. In 1985, the then Prime Minister of India, Shri. Rajiv Gandhi formally inaugurated the silent valley national park.

Q9. Describe the Bishnoi movement.

Ans: The Bishnoi Movement took place during 1700s in the Khejarli and surrounding villages of Manwar region of Rajasthan. This movement was initiated by Amrita Devi along with other bishnoi villagers.

The main objective of the movement was to save the sacred trees from being cut down by the king's soldiers for a new place. Amrita Devi, a native could not bear to witness the destruction of both her faith and the village's sacred trees. She along with other villagers hugged the trees and that they will not leave the trees and if the soldiers still want to cut the trees they had to go through them. 363 Bishnoi villagers were sacrificed their life in this movement.

The Bishnoi tree martyrs were influenced by the teaching of Guru Maharaj Jambaji, who founded the Bishnoi faith in 1485 and set forth principles forbidding harm to trees and animals. The king after knowing about the incident rush to the

village and apologized, ordering the soldiers to cease logging operation. Soon, afterwards the Maharaja designated the Bishnoi state as a protected area, forbidding harm to trees and animals.

Q10. Describe the role of public awareness to protect environment.

Ans: Public awareness plays the major role in creating the consciousness amongst mass to conserve environment. Some of the important contributions of public awareness are as follows:

- i. The active co-operation of everyone, at every level of social organization is needed for issues concerning environment. Human activities are causing many kinds of environmental pollution for which public awareness is necessary. Some of the activities include use of pesticides, improper use of fertilizers and chemical in the environment, deforestation, etc.
- ii. Any government at its own level cannot achieve the goal of sustainable development until the public has a participatory role on the ground level. The general public should be integral part of various education and environmental awareness programs so that they develop it them the Attitude, Skill, Knowledge and participate in various tasks and campaigns.
- iii. Planning related to effects and control measures of environmental pollutions can be enhanced via awareness campaign, concern, finding out measures, active participation of the public in saving the environment, for which public awareness plays a very important role.
- iv. To know the root cause and contributing factors of a problem related to the environment solves half of the problem. The public awareness leads to the understanding, relishing and development of will to actively participate for the conservation of the environment. Some of the measures include proper family planning, sustainable use of resources, afforestation, etc.