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KLNCIT	CLASS TEST QUESTION	Format No.:ACD11A-I
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Subject Code/Subject Name : GE6351/ Environmental Science and Engineering Class test No. : I

Year and Branch : II / IT Total marks : 25

Date : 22.07.2017 Duration : 50mins

I. Course outcomes, Question Number, Marks

COs	CO1	CO2	CO3	CO4	CO5
Q.Nos	1, 2, 3, 4, 5, 6a, 6b	-	-	-	-
Marks (Max)	25	-	-	-	-

II. Knowledge skill outcomes

Level	Remember (K1)	Understand (K2)	Apply (K3)	Analysis (K4)	Evaluate (K5)	Create (K6)
Q.Nos	3, 4, 5	1, 2, 6a/ 6b	-	-	-	-
Marks (Max)	6	19	-	-	-	-

PART – A

5 × 2 = 10 Marks

Answer all the questions

1. Compare food chain and food web. (K2)

- a. Food chain is a single linear pathway through which food energy and nutrients travels in the ecosystem while food web is number of interconnected food chains through which energy and nutrients travels in the ecosystem.
- b. In food chains, usually member of high trophic level feed upon a single type of organism of lower trophic level while in food web members of higher trophic level feed upon many organisms of lower trophic level.
- c. In food chains, separate and isolated food chains increases the instability of the ecosystem. In food web, stability of the ecosystem increases by the presence of complex food webs.
- d. Food chains have no effect on improving the adaptability and competitiveness of the organisms while more complex food webs improves the adaptability and competitiveness of the organisms.

2. Classify the three levels of Biodiversity with examples. (K2)

- a. Genetic
- b. Species
- c. Ecosystem

3. What are the three types of biotic factors of an Ecosystem? (K1)

- a. Producers or autotrophs, Consumers or heterotrophs, and Decomposers or detritivores.

4. List some of the Hot spots in India. (K1)

- a. Himalaya
- b. Indo-Burma
- c. Sundalands
- d. Western Ghats and srilanka

5. Define the term Environment. (K1)

- a. The natural world, as a whole or in a particular geographical area, especially as affected by human activity.
- b. The term environment has been derived from a French word “Environia” means to surround. It refers to both abiotic (physical or non-living) and biotic (living) environment. The word environment means surroundings, in which organisms live. Environment and the organisms are two dynamic and complex component of nature. Environment regulates the life of the organisms including human beings. Human beings interact with the environment more vigorously than other living beings. Ordinarily environment refers to the materials and forces that surrounds the living organism.

PART – B

1 × 15 = 15 Marks

6. a) Explain in detail Ecosystem. Give an account of structure and functions of Grassland Ecosystem and Marine Ecosystem. (K2)

(15)

Marine

The marine ecosystem is different from fresh water ecosystem mainly because of its salty water and also because:

- (i) The sea covers 70 per cent of earth's area,
- (ii) The sea is deep,
- (iii) The sea is continuous, and
- (iv) The sea water is in continuous circulation. According to Odum, “marine ecology emphasises the totality or pattern of relationship between organisms and the sea environment.”

Grassland

Grasslands occupy about 19 per cent of the earth's area, which include tropical and temperate grasslands. In this, the savannah ecosystem is very important. The abiotic components are the nutrients present in the soil and aerial environment. The elements like carbon dioxide, water, nitrates, phosphates, sulfates, etc., are present in the air and soil of the area. The producers are mainly grasses and small trees and shrubs. The primary consumers include cows, buffaloes, sheep, goats, deer, rabbits, and other animals, while secondary consumers are animals like foxes, jackals, snakes, frogs, lizards, birds, etc. The microbes are active in the decaying and dead organic matter of different forms. They bring the minerals back to the soil, thus making them available to producers. Pastoralism and livestock ranching are the main occupations in these regions.

(OR)

7. (b) What do you understand by Conservation of Biodiversity? Explain In-situ and Ex-situ conservation along with their merits and demerits. (K2)
(15)

Biodiversity is being depleted by the loss of habitat, fragmentation of habitat, over exploitation of resources, human sponsored ecosystems, climatic changes, pollution invasive exotic species, diseases, shifting cultivation, poaching of wild life etc.

Since the human beings are enjoying all the benefits from biodiversity, they should take proper care for the preservation of biodiversity in all its form and good health for the future generation i.e., the human being should prevent the degradation and destruction of the habitats thereby maintaining the biodiversity at its optimum level.

Conservation of biodiversity is protection, upliftment and scientific management of biodiversity so as to maintain it at its threshold level and derive sustainable benefits for the present and future generation. In other words, conservation of bio-diversity is the proper management of the biosphere by human beings in such a way that it gives maximum benefits for the present generation and also develops its potential so as to meet the needs of the future generations.

Mainly the conservation of biodiversity has three basic objectives:

- (a) To maintain essential ecological processes and life supporting systems.
- (b) To preserve the diversity of species.
- (c) To make sustainable utilisation of species and ecosystems.

(a) In situ conservation:

The conservation of species in their natural habitat or natural ecosystem is known as in situ conservation. In the process, the natural surrounding or ecosystem is protected and maintained so that all the constituent species (known or unknown) are conserved and benefited. The factors which are detrimental to the existence of species concerned are eliminated by suitable mechanism.

The different advantages of in situ conservation are as follows:

- (a) It is a cheap and convenient way of conserving biological diversity.
- (b) It offers a way to preserve a large number of organisms simultaneously, known or unknown to us.
- (c) The existence in natural ecosystem provides opportunity to the living organisms to adjust to differed' environmental conditions and to evolve in to a better life form.
 - a. Protected Areas
 - b. Wildlife Sanctuaries
 - c. Biosphere Reserves

(b) Ex-situ conservation:

Ex-situ conservation involves maintenance and breeding of endangered plants and animals under partially or wholly controlled conditions in specific areas like zoo, gardens, nurseries etc. That is, the conservation of selected plants and animals in selected areas outside their natural habitat is known as ex-situ conservation.

The stresses on living organisms due to competition for food, water, space etc. can be avoided by ex-situ conservation there by providing conditions necessary for a secure life and breeding.

Some important areas under these conservation are:

- (i) Seed gene bank,
- (ii) Field gene bank;
- (iii) Botanical gardens,
- (iv) Zoos.