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DEP MIC 4th Sem

Paper Microbial Ecology

 Q NO 3

 Answer

 Commensalisms

 It is a Latin word which mean together .

 It is a relationship between two organisms in which the one benefits and the other derives neither benefit nor harm .

Examples

 The remora rides attached to sharks and other type of fish .the remora benefits by gaining a measure of protection , and it feeds off of the remains of the meals of the larger fish .

The cattel egret is a type of heron that will follow livestock herds .

A good example is the succession of microorganisms during milk spoilage .

When biofilms are formed , the colonization of a newly exposed surface by one type of microorganism an initial colonizer makes it possible for other microorganisms to attached to the microbially modified surface .

Commensalism also important in the colonization of the human body and the surface of other animals and plants .

 Predation

Predation is a relationship in which member of one species consume members of another species . predator –prey relationship . interaction between two organisms of unlike species , one organisms act as predator that captures and feeds on the other organisms , which serves as the prey .

In ecology predation is a mechanism of population control .

Predation is a widespread phenomenon where the predator engulfs or attacks the prey . the prey can smaller or larger than predator . and this normally results in the death of the prey .

Predator bacteria are active in nature .

Predation can provide a protective , high –nutrient environment for particular prey .

Example

 Example of predation involve in carnivorous interaction , in which one animal consumer another. think of wolves hunting moose, owls hunting mice , or shrews hunting worms and insects .

 Q NO 4

 Answer

 Microbial Habitat

Habitat

 The natural home or environment of plants , animal , or other organism.

Habitat place where an organism or a community of organisms lives , including all living and non-living factors or condition of surrounding environment . a host organism inhibited by parasite is as much a habitat as terrestrial place as a grove of trees or aquatic locality such as a small pond .

 Microbial habitat

Found in every kind of habitat .

Microbial habitats including soils, rivers oceans , lakes , on the surface of living and dead things , inside other organisms , on manmade structures, and everything in between –provide nutrients and protect cell from harsh conditions . these environments are rich in microbial life .

Aquatic microbial habitat

 Microbes lives in both salt and fresh water .

These organism include microscopic plant and animal as well as fungi , bacteria and viruses .

An aquatic microbial habitat is a habitat with water .it include areas that are permanently covered by water and surrounding areas that are occasionally covered by water .

Terrestrial microbial habitat

 One percent microbes that live in soil

Fungi and bacteria lives in soil feed mostly on organic matter such as other animals and plats .

Fungi are crucial in decomposing plant matter . some fungi are free living in soil

Soil microbes being tested for their ability to degrade toxic chemicals .

 Q no 2

 Answer

Microorganism in terrestrial environment

 Microorganism are present in the soil primarily attached to soil particles . the most important factor influencing microbial activity in the surface of water , where as in deep soil the surface environment , nutrient availability plays a major role .

Density and composition of microbial flora of soil affected by environmental condition .

. wet soil unfavorable for growth due to lack of air .

During drought water availability drops and organisms decrease .

Many organism produce survival from such as endospores and cysts .

Other environmental influence include acidity , temperature and nutrient supply

Fungi are usually found in the top portions of the soil due to aerobic nature .

Some fungi are free living in soil

Others develop symbiotic relationship with certain plant roots .

Bacteria and fungi lives in soil feed mostly in organic matter such as other plant and animals . soil is the habitat for organism including bacteria , fungi , protozoa , worms , insects , nematodes and many other viruses present in soil .

 Q NO 5

 Answer

 Phytoplankton

 Phytoplankton autotrophic, they are microscopic marine algae .also known as microalgae , are similar to terrestrial plant and they contain chlorophyll and required sun light in order to live and grow. most of phytoplankton are buoyant and float in the upper part of ocean , where sun light penetrates the water .

Virioplanktone

 That virus may be the most abundant organism in natural water , surpassing the number of bacteria by an order of magnitude inspired a resurgence of interested in viruses in the aquatic environment . surprisingly the little was known of the interaction of virus and host in nature.

Barophiles

 A barophile is an organism that need a high pressure environment in order to grow . barophile are the type of an extremopiles . an example of high pressure habitat is the deep sea environment , such as ocean floors and deep lakes where the pressure can exceed 380 atm .

Epilimnion

 The upper layer of water in stratified lake . occurring above the deeper hypolimnion . it is a warmer and typically has a high ph and higher dissolved oxygen concentration then the hypolimnion .

Thermoelline

 Large scale density driven circulation in the ocean caused by difference in temperature and salinity . in the north Atlantic , the thermoelline circulation constant of a warm surface water flowing northward and cold deep water flowing southward ,resulting in a net pole ward transport of heat .

Plants are entirely dependent upon soil microorganism to utilize soils as a growth medium

The rizospherehas greatest concentration of microorganisms root exudates dictate the microbial communities .

A wide range of microorganisms

 Q no 1

 Answer

Roles of regulation of microbes in natural and manmade environment

 Microorganism are found everywhere in the environment and play a leading role in countless natural processes . among other thing they operate the basics drug cycles that are necessary for the plants supply of nutrients via the reaction of organic matter in soil .

Microbes play an essential role in the natural recycling of living material . all naturally produced substance are biodegradable, which mean that living organisms , such as bacteria or fungi , can break them down .

Microorganism as plant growth promoters

Fungi play important role in organic matter decomposition and there fore nutrient cycling . among soil fungi abuscular mycorrihizal fungi , AMF ,are the most important and widely studied group as potential bio fertilizers and bio pesticides

Plants continually secret synthesized food through their roots.

For example in many crops like sugarcane , tomato and potato inoculation by rhizobacterial strains resulted in complete prevention of pathogenic development due to the production of antibiotic substance.

The use of microorganism as bio pesticides is an environmentally friendly approach as these microbes are very specific to their host pathogens .