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REGNO: 20BCE10093
SUBJECT: CHY1002
FACULTY: DR SUMIT MITTAL (A11+A12)

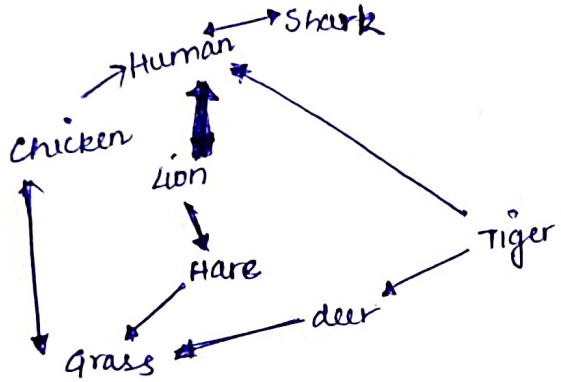
12/20

2* A) FOOD CHAIN : Different species of flora and fauna together form a food chain. A food is less complex and includes less complications by limiting the number of organisms

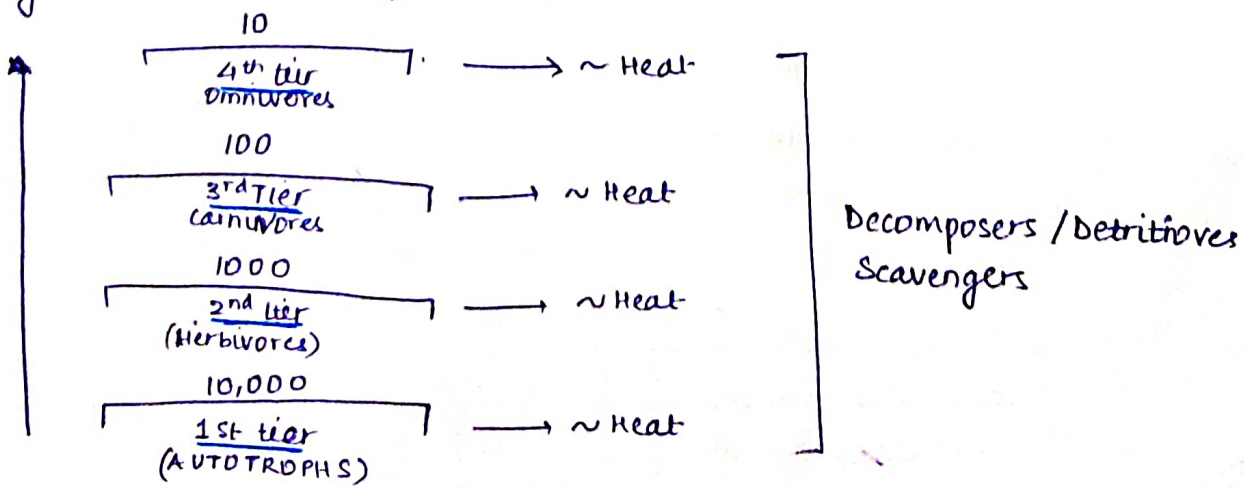
eg Grass ⟶ Hare ⟶ Lion ⟶ Vulture.

* FOOD WEB : When different food chains overlap and form a complex connection of who eats whom, is called a food web.

eg



According to second law of thermodynamics, whenever there is flow of energy, some energy is always lost. So as the chain progresses, less energy is delivered to the next tier. Similarly, in the case of food webs, the complexity is high and it requires many autotroughs and first and second tier organisms to sustain a food web. No food chain or food web is observed having any more levels than four or five tiers because of this reason.



* B) FOOD CHAIN ⇒ ~~Fallen leaves~~ ⟶ Bacteria → fallen leaves ⟶ insect larval → birds

3 Ecological succession or biotic succession occurs when the climax community of a particular region is erased or disturbed. It also occurs in the regions where no life form has ever bloomed. For eg: Volcanic eruption sites, floods, forest fires etc. In the given question the steps of ecological succession on a bare rock ~~of a pond~~ depicts primary ecological succession as no life form has been present from before.

a) Lichen formation (PIONEER ORGANISMS) – They are the organisms which drive the ecological succession. They are large in number, multiply immediately, and ~~dece~~ die fast. When they die, they produce dead organic matter, and increase soil formation slowly, the soil becomes fertile and microplants and grass appear slowly insects and small animals also become a part of the habitat.

~~b) The pond also shows secondary ecological succession as the pond already has water (clean water). The water~~

Slowly the ecological succession escalates and trees and big animals appear taking the ecosystem towards a climax community.

A climax community is a community where all the biotic and abiotic components are present in perfect balance and complete harmony.

No more ecological succession can take place until it is disturbed or harmed by natural or anthropogical sources.

4

ADVANTAGES	DISADVANTAGES
→ Rapid production increases sales, more money earned in less time.	→ Possible health risks, if not tested properly.
→ Cheaper in price, more quantity.	→ Depletion of original salmon species, maybe extinction of the original as the new could have traits to survive over original.
→ Reduce world hunger.	→ Long term effects of unknown hazards. (Long term health effects)
→ Requires less food, more production in less investment.	→ Give new allergies or new diseases if a person doesn't know about the changes made in the fish and is already allergic to some trait.

5 Various sources of different levels of sediments in a water body are: sewage, human and animal waste, pulp mills, industrial waste, agricultural waste, fertilizers, soil erosion, silt, ~~plastic~~ chemicals and toxins from homes and industries, farm waste, urbanisation among many others.

The level of sedimentation effect on ecosystem by many means.
It effects the aquatic system (decrease in population of fishes), change in migration rate, change in currents in some cases. It also leads to loss of sea fauna and alteration of the coast. Sedimentation also makes it difficult to clean polluted water. There is loss of coral reefs in places such as australia due to the excessive level of contamination. Many measures have been taken to protect it.

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6 RISK ASSESSMENT: It is a statistical process to estimate how much harm a hazard can cause to the environment and the mankind.

RISK MANAGEMENT: It is a process of deciding and implementing the measures required to reduce a risk to a very small number.

→ In the given question, to assess the risk:

* HAZARD: Spread of COVID-19 when the college reopens after March (Nine-months)
* PROBABILITY: Very high. Seeing the present condition of the country, where the numbers aren't decreasing and new mutants of the COVID-19 virus seen around the world, the risk is HIGH. ~~But~~ We have vaccines ready, but still, there is still time before they are provided to everyone.
* CONSEQUENCES: Major chunks of old faculties and youngsters can get COVID positive and it would cost money and resources

→ Risk management here:

* COMPARISON: The spread of COVID-19 after ~~all~~ keeping all rules and regulations is a little difficult, but not impossible. Social distancing, use of masks and sanitizers would help but cannot minimise the risk to VERY LOW.
* REDUCTION AND STRATEGY: To reduce and risk to VERY LOW and for the smooth functioning, the college should:

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- Mandatory COVID-19 tests at arrival
- Proper notes of medical history and diseases
- Should have a dedicated medical team.
- Dormitories and hostels should not be stuffy
- Awareness and strictness in students, about the pandemic.
- Faculty members being aware too.
- Proper and complete use of masks, gloves and sanitizers.
- Follow social distancing.
- FINANCE: A good fraction of money for health care professionals
  - Funds for masks, gloves and sanitizers.
  - sanitation of class rooms, labs etc
  - Information spreading Online, offline sources etc

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1 A) Hg (Mercury) is low in concentration in sea water as it can cause various threats as it is a toxin. Algae absorb mergcury in the form of methyl mercury, which is very dangerous. It can cause brain damage in babies. It can also harm heart, kidneys and immune system of the body.
Still, more than 1ppm of mercury concentration is present in shark, which is a fourth tier organism in the food chain. It is because of the process of Biomagnification, when the toxic mercury enters algae (as algae absorbs it) it doesnt know what to do with it and transfers to the next tier. The concentration builds up and reaches the shark at the fourth tier in the food chain.

B) The hydrological cycle (the ocean currents and the movement of waves) depends on temperature, climate. But due to global warming and the climate change, all these things will change in the upcoming years. It would effect the overall temperature of the ocean, the sea levels would rise due to the melting of permafrosts, the currents would change, the fishes migration rates would change, the evaporation rates and everything would change
This would cause severe floods and droughts in different parts of the world

END