STD VI

HABITAT AND ADAPTATIONS

Q 1. WHAT IS A HABITAT?

ANS. A HABITAT IS A PLACE WHERE AN ORGANISM OR A WHOLE COMMUNITY OF ORGANISMS SURVIVES NATURALLY.

-IT IS DIVIDED INTO THREE TYPES:

a. TERRESTRIAL - GRASSLANDS , DESERTS, MOUNTAINS.

b. AQUATIC - UNDER WATER.

-AQUATIC HABITAT COMPRISES OF TWO KINDS-

FRESHWATER(PONDS, LAKES , RIVERS)

MARINE(SEAS).

- ARBOREAL (IN AIR AND ON TREES)

Q2. WHAT ARE THE TWO COMPONENTS OF A HABITAT?

A2. THE TWO COMPONENTS OF A HABITAT ARE-

1. BIOTIC - IT COMPRISES OF LIVING FACTORS LIKE PLANTS , ANIMALS AND MICROORGANISMS.

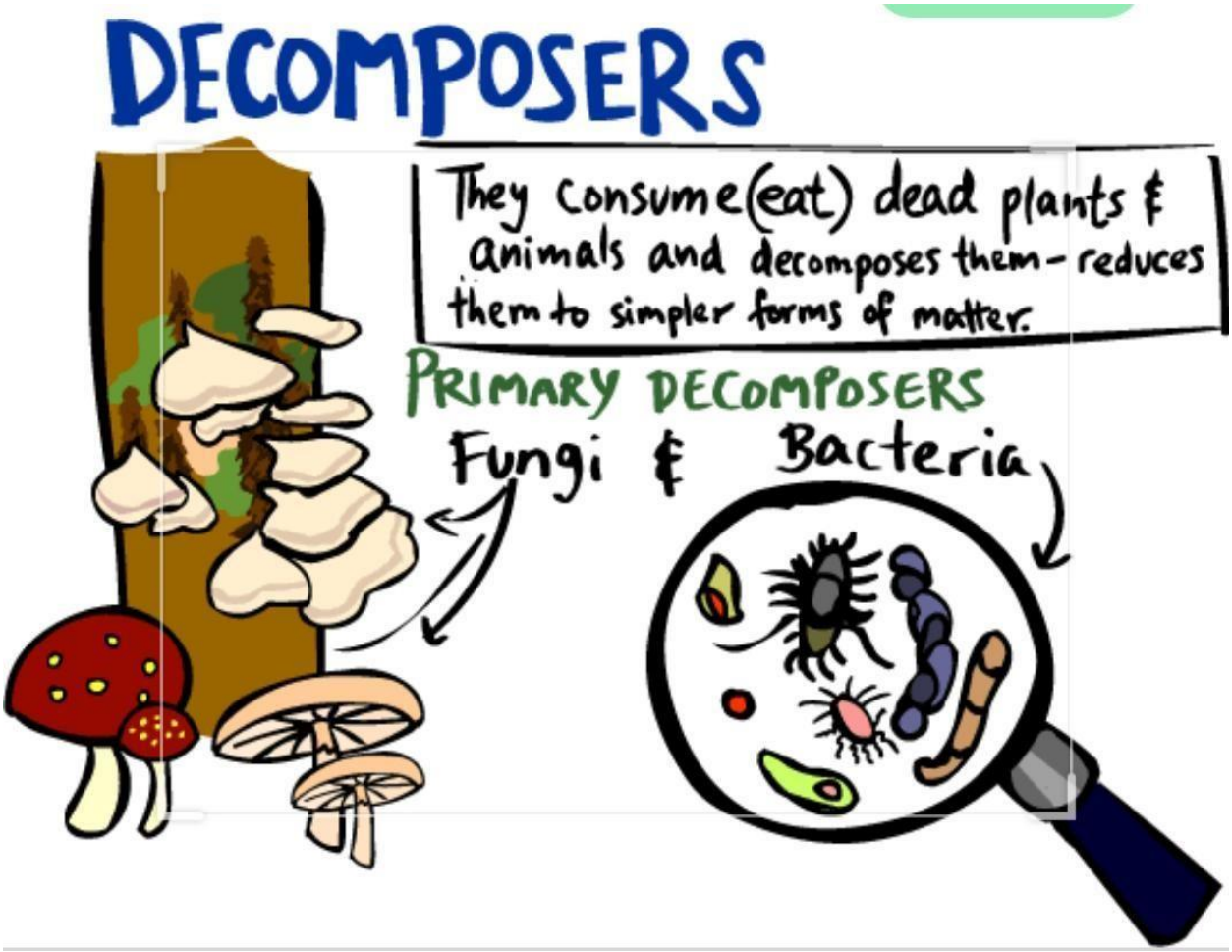
2. ABIOTIC - IT COMPRISES OF NON LIVING FACTORS LIKE AIR, SOIL, LIGHT, TEMPERATURE AND WATER.

Q3. WHAT ARE DECOMPOSERS?WHY ARE THEY CALLED THE NATURAL CLEANERS OF OUR ENVIRONMENT?

A3. DECOMPOSERS ARE THE MICROORGANISMS LIKE BACTERIA AND FUNGI THAT HELP IN CLEANING UP OF OUR ENVIRONMENT IN THE FOLLOWING WAYS-

1. THEY BREAKDOWN THE COMPLEX SUBSTANCES INTO SIMPLER ONES.
2. THE DEAD AND DECAYING PLANT AND ANIMALS ARE DECOMPOSED BY THEM , THUS NOT LETTING THE WASTES TO PILE UP.
3. WHILE DECOMPOSING THE DEAD AND

DECAYING MATTER, IN THE PROCESS, THEY ALSO HELP IN THE RE- CYCLING OF THE NUTRIENTS IN THE ENVIRONMENT.



Q4. WHAT IS AN ADAPTATION?

A3. ADAPTATIONS ARE THE STRUCTURAL OR

FUNCTIONAL ADJUSTMENTS OR CHANGES IN AN ORGANISM, THAT HELP IT TO SURVIVE IN ITS NATURAL HABITAT.

FOR Eg. POLAR BEARS HAVE THICK LAYER OF FAT ,CALLED BLUBBER , THAT HELPS GENERATE HEAT IN THEIR BODY AND HELPS THEM TO SURVIVE IN ICY COLD POLAR REGIONS.

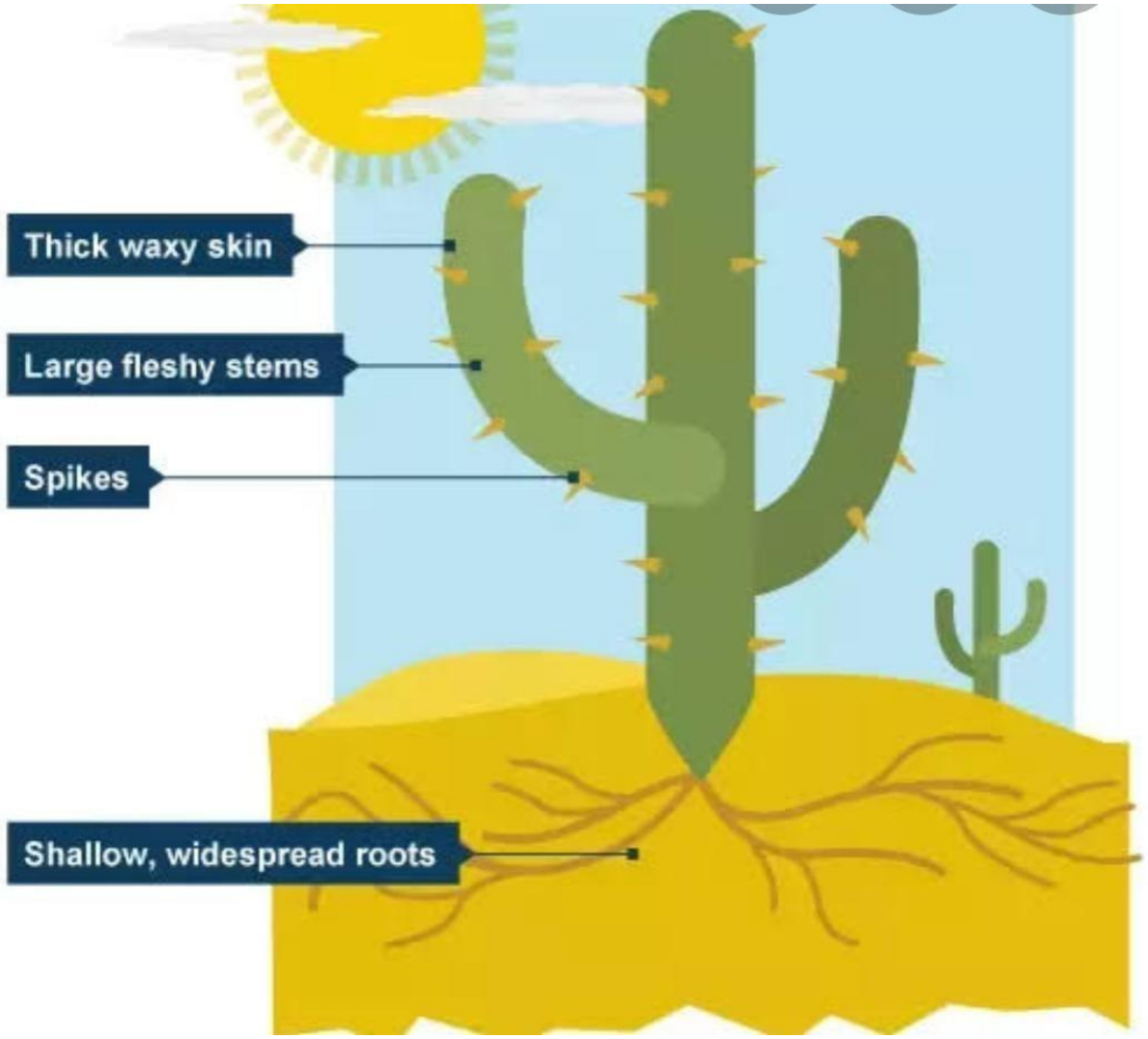
* THESE CHANGES, TAKE A VERY LONG PERIOD OF TIME TO BE DEVELOPED.

Q5. WHAT TYPE OF ADAPTATIONS DO XEROPHYTES AND HYDROPHYTES HAVE, TO HELP THEM COPE UP WITH THEIR NATURAL SURROUNDINGS?

A4. XEROPHYTES:
*THESE ARE PLANTS PRESENT IN DRY AND DESERT REGIONS.

*CACTI HAVE GREEN SPONGY STEMS ,WHICH HELP IN STORING FOOD.

*THEY ALSO HAVE SPINES, WHICH HELP TO REDUCE TRANSPIRATION AND THUS HELP IN FIGHTING SHORTAGE OF WATER.



*THESE PLANTS ALSO HAVE SEGMEMENTED LEAVES AS IN ACACIA FOR PREVENTING LOSS OF WATER.

*THEY HAVE LONG ,PENETRATING ROOTS TO REACH THE GROUND WATER.

* LEAVES ARE MODIFIED INTO SPINES TO PREVEN THEM FROM BEING EATEN.

2. HYDROPHYTES

*THESE ARE THE PLANTS THAT ARE FOUND IN WATER EITHER AS FLOATING PLANTS LIKE WATER LILY OR WATER LETTUCE OR SUBMERGED ONES LIKE HYDRILLA.

* FLOATING PLANTS HAVE ADAPTATIONS OF HAVING AIR CAVITIES IN THEIR LEAVES AND STEMS THAT MAKE THEM LIGHT- WEIGHT AND EASY TO FLOAT.

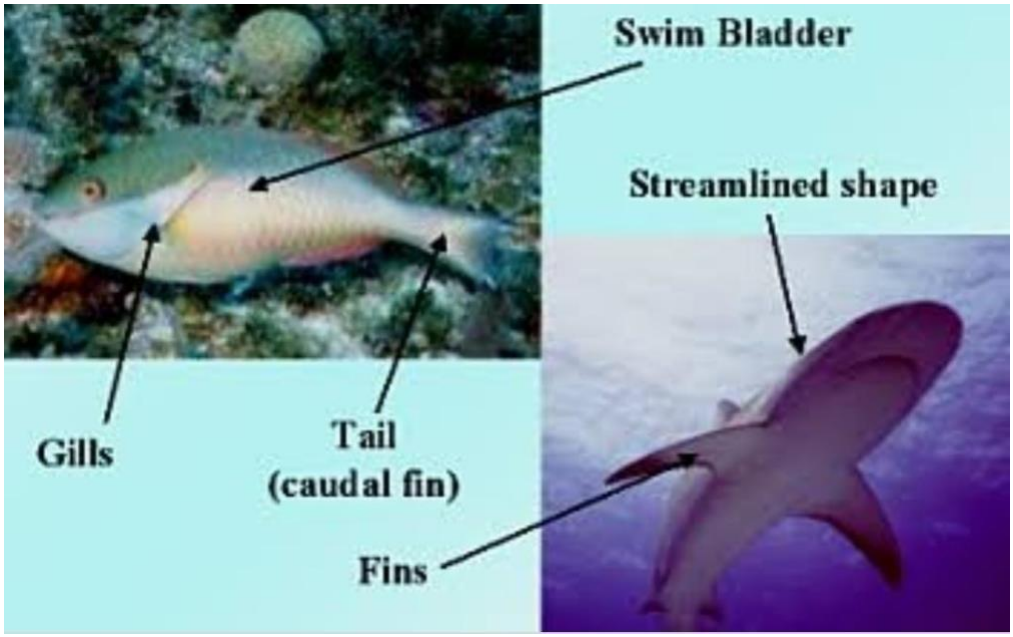
*THEY ALSO HAVE WAXY COATINGS ON THEIR LEAVES AND STEMS SO THAT THEY DO NOT GET DECAYED IN WATER.

*SUBMERGED PLANTS HAVE LONG AND THIN STEMS AND LEAVES SO THAT THEY ARE ABLE TO ABSORB AND USE THE FAINT LIGHT THAT REACHES UNDER WATER.

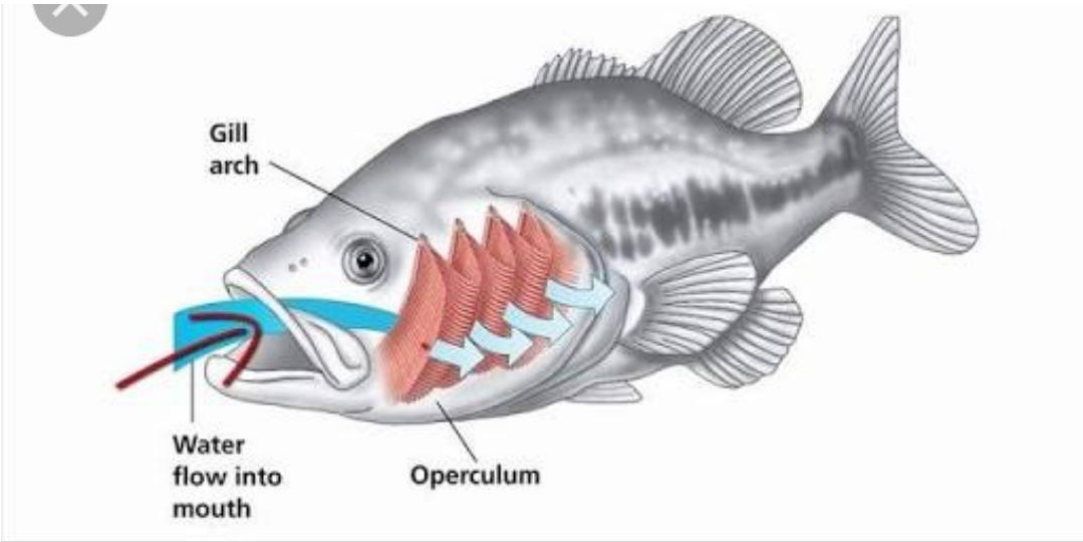
* THEY HAVE SEGMENTED LEAVES THAT OFFERS VERY LITTLE RESISTANCE TO THE FLOW OF WATER.

Q6.. WHAT ARE THE SPECIAL ADAPTATIONS THAT HELP FISH SURVIVE IN WATER?

A5. *FISH HAVE STREAMLINED BODY AND SLIPPERY SCALES THAT HELP THEM TO SWIM IN WATER WITHOUT ANY RESISTANCE.



*.THEY HAVE GILLS, COVERED BY PROTECTIVE COVERING CALLED OPERCULUM, THAT HELPS THEM TO RESPIRE IN WATER.



*. WATER CONTAINING DISSOLVED OXYGEN

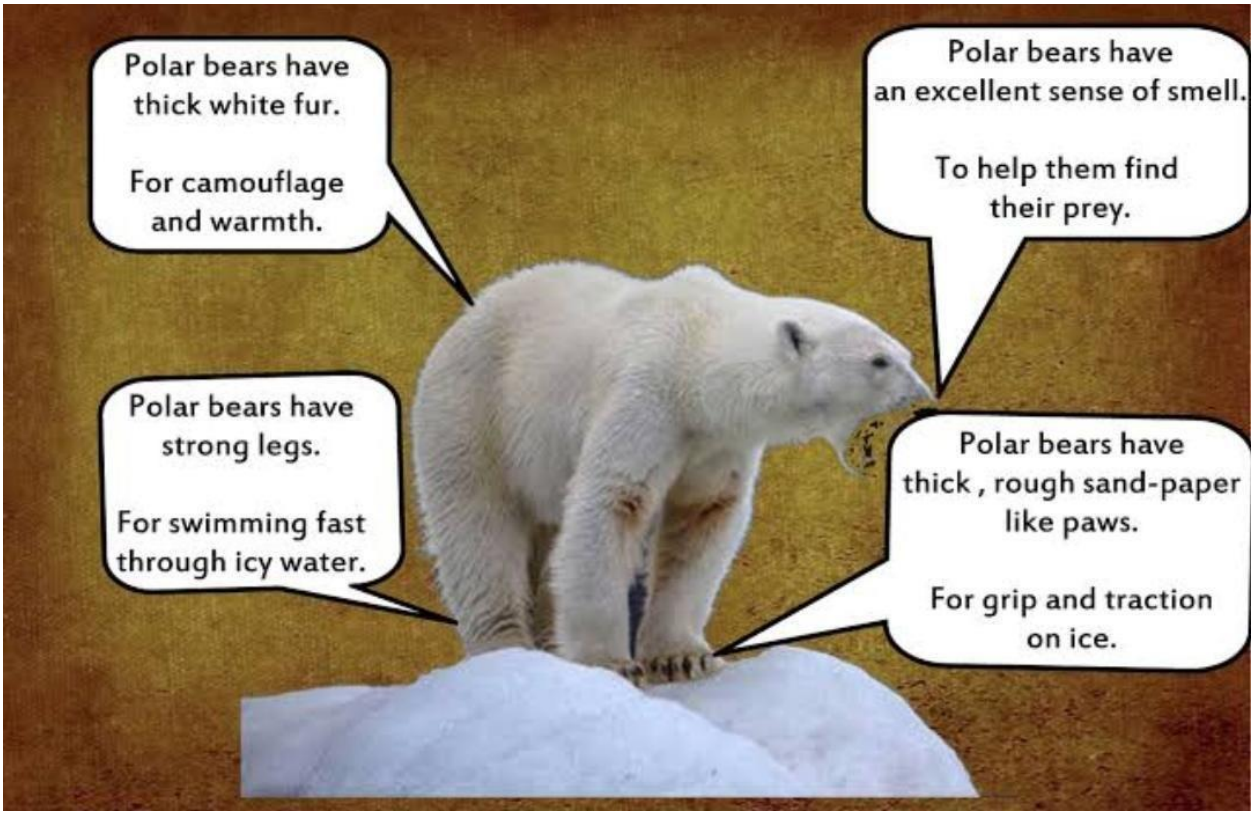
ENTERS THROUGH THEIR MOUTH AND THEN FLOWS OVER THE GILLS , WHERE OXYGEN IS ABSORBED.

*. THE CARBONDIOXIDE RELEASED BY THE GILLS, DISSOLVES IN THE WATER AND PASSES OUT.

Q7..EXPLAIN THE ADAPTATIONS THAT HELP THE ORGANISM IN ICY TERRAINS SURVIVE IN EXTREME COLD CONDITIONS.

A7. ORGANISMS OF THE EXTREME COLD REGIONS SURVIVE THROUGH THE FOLLOWING WAYS-

1. THEY HAVE THICK LAYER OF FAT CALLED BLUBBER THAT HELPS IN STORING FOOD AND GENERATING HEAT, THUS HELPING TO FIGHT THE WINTER AND SHORTAGE OF FOOD.FOR Eg., IN POLAR BEARS, PENGUINS OR SEALS.



*. SOME ANIMALS GO ON A LONG WINTER SLEEP , CALLED HIBERNATION TO ESCAPE WINTER CONDITIONS. FOR Eg: LIZARDS AND SNAKES.

3. BIRDS LIKE SIBERIAN CRANES, MIGRATE TO WARMER AREAS DURING WINTERS.

Q8. HOW ARE CAMELS ADAPTED TO LIVE IN THEIR HABITAT?

A8.CAMELS HAVE SPECIAL ADAPTATIONS THAT HELP THEM TO COPE UP WITH THE INTENSE HEAT OF THE DESERT:

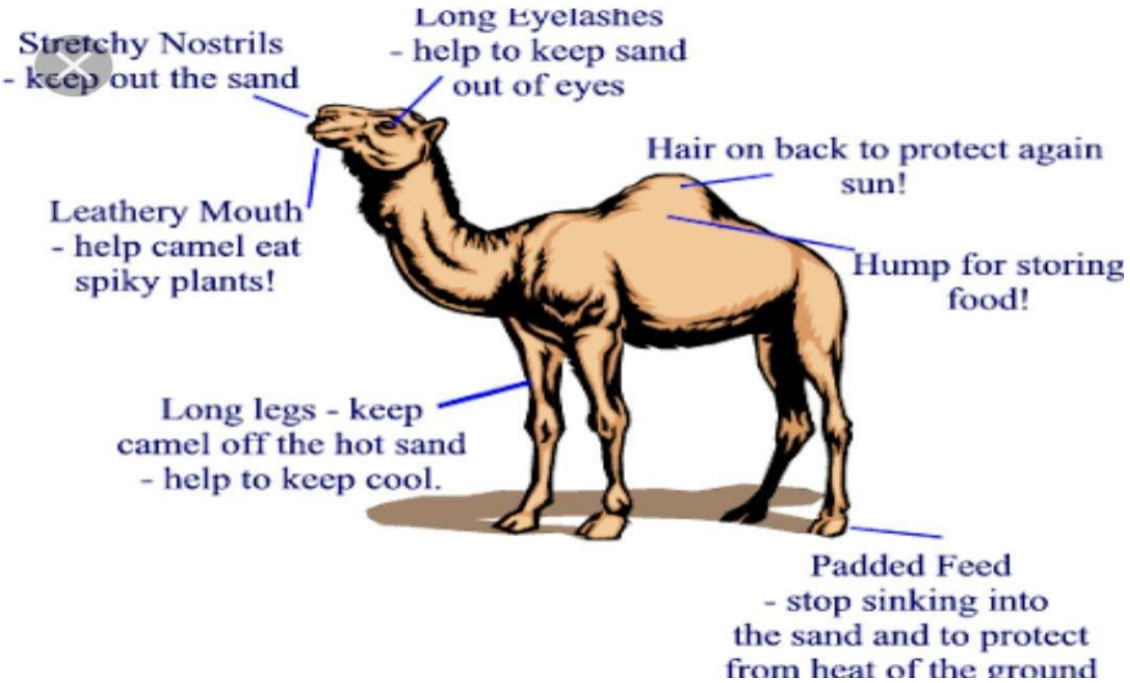
1. THEY HAVE A HUMP ON THEIR BACK , WHICH CAN STORE FOOD AND WATER ,THUS PREVENTING WATER SHORTAGE.

2. THEIR LONG LEGS HELP THEM KEEP AWAY FROM THE INTENSE HEAT OF THE SAND.

3. THEY HAVE EYELIDS, THAT PREVENT SAND FROM ENTERING THEIR EYES.

4.THEY EXCRETE LESS AMOUNT OF URINE AND THUS PREVENTING DEHYDRATION.

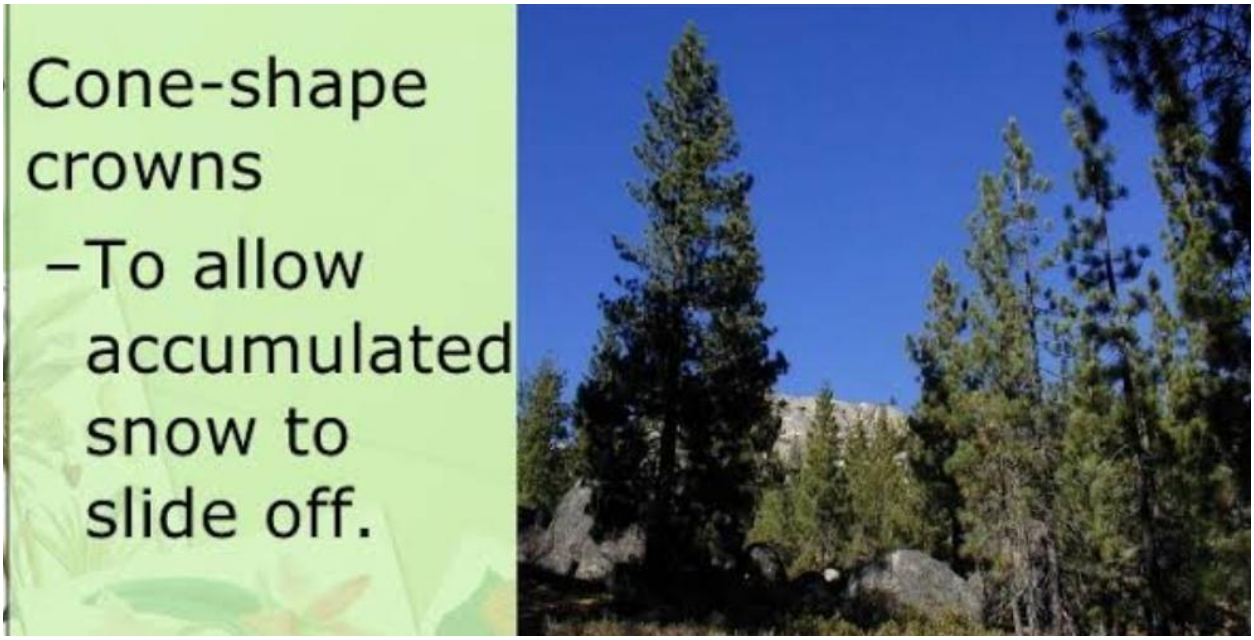
5. THEY HAVE PADDED FEET THAT DO NOT SINK IN THE SAND.



Q9. IN WHAT WAYS DO CONIFERS SURVIVE IN THEIR HABITAT.

A9. CONIFERS ARE THE TREES THAT ARE FOUND IN SUB POLAR REGIONS AS IN TAIGAS.

-THE CONICAL SHAPE OF THE TREE DOES NOT ALLOW THE SNOW TO ACCUMULATE OVER IT.THE SNOW SLIDES OFF EASILY.



2. THEY HAVE NEEDLE SHAPED LEAVES THAT HELP, DURING SHORTAGE OF WATER BY REDUCING THE TRANSPIRATION RATE AND DO NOT GET BROKEN BY THE WEIGHT OF SNOW.

Q10. EXPLAIN CAMOUFLAGE BY GIVING A SUITABLE EXAMPLE.

A10. CAMOUFLAGE IS A MORPHOLOGICAL ADAPTATION IN WHICH ORGANISMA BLEND WITH THEIR SURROUNDINGS TO AVOID BEING EATEN BY OTHER ORGANISMS.

*FOR Eg.: CHAMELION IS AN REPTILE, THAT CAMOUFLAGES ITSELF ACCORDING TO ITS BACKGROUND ENVIRONMENT BY CHANGING ITS COLOUR.

* A TIGER HAS STRIPES AND IS DIFFICULT TO SPOT IN A GRASSLAND AS IT MERGES WITH THE BACKGROUND.

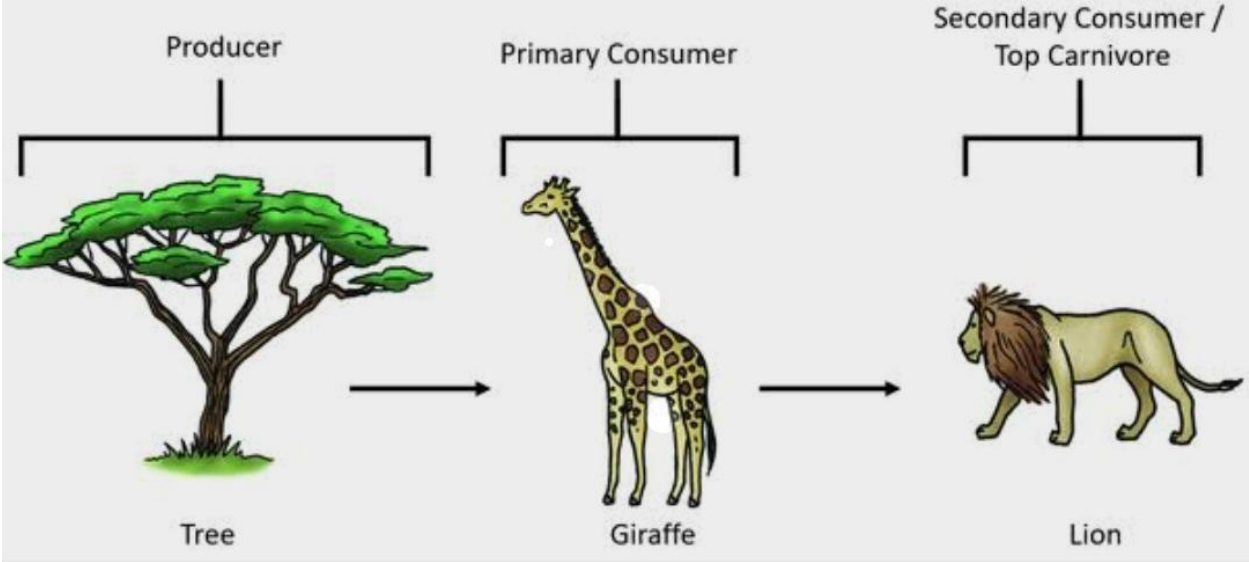
Q11. EXPLAIN A FOOD CHAIN.

A11 A FOOD CHAIN IS A CHAIN OR SERIES OF ORGANISMS WHICH ARE LINKED TOGETHER IN THE PROCESS OF EATING AND BEING EATEN.

1. TERRESTRIAL FOOD CHAIN - FOOD CHAIN ON LAND.

GRASS -> DEER -> TIGER.

HERE GRASS IS THE PRODUCER , DEER IS THE PRIMARY CONSUMER AND TIGER IS THE SECONDARY CONSUMER.



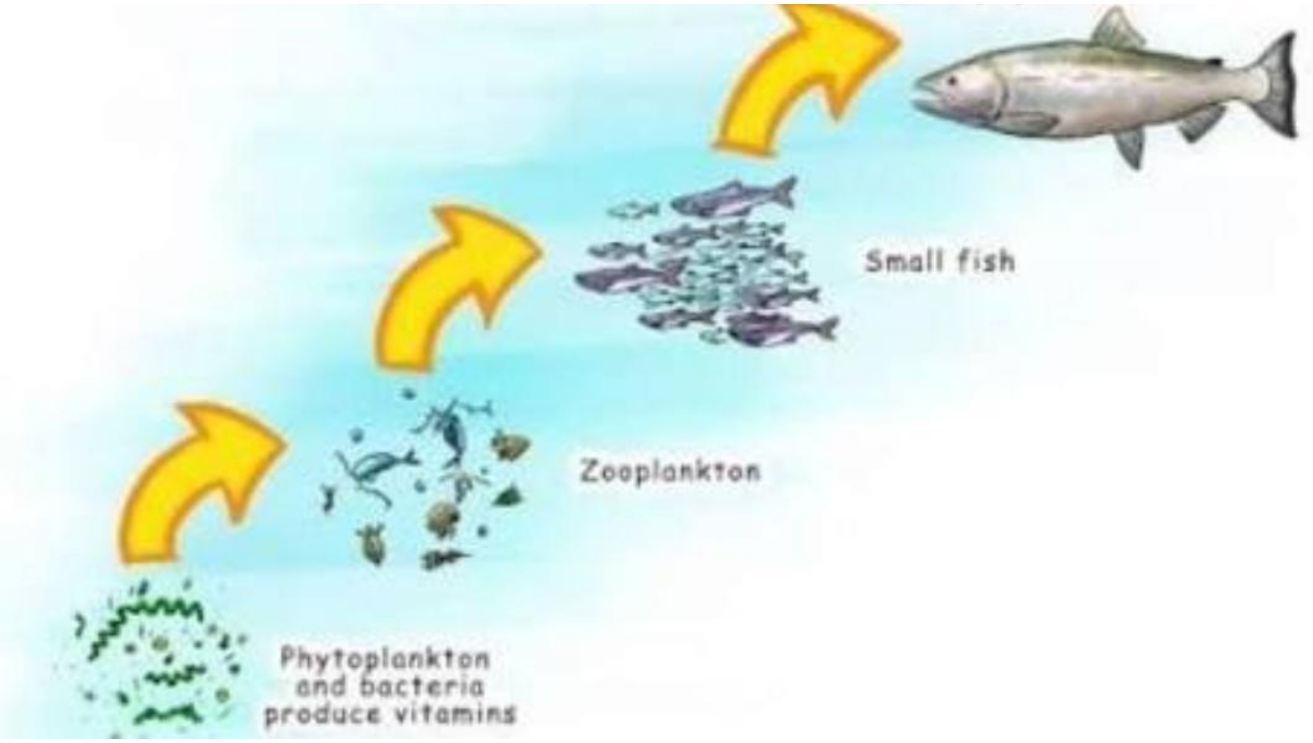
2. AQUATIC FOOD CHAIN - FOOD CHAIN IN WATER.

AQUATIC PLANTS -> PHYTOPLANKTONS -> ZOO PLANKTONS -> SHARK.

HERE, AQUATIC PLANTS ARE PRODUCERS ,

PHYTOPLANKTONS ARE THE PRIMARY CONSUMERS

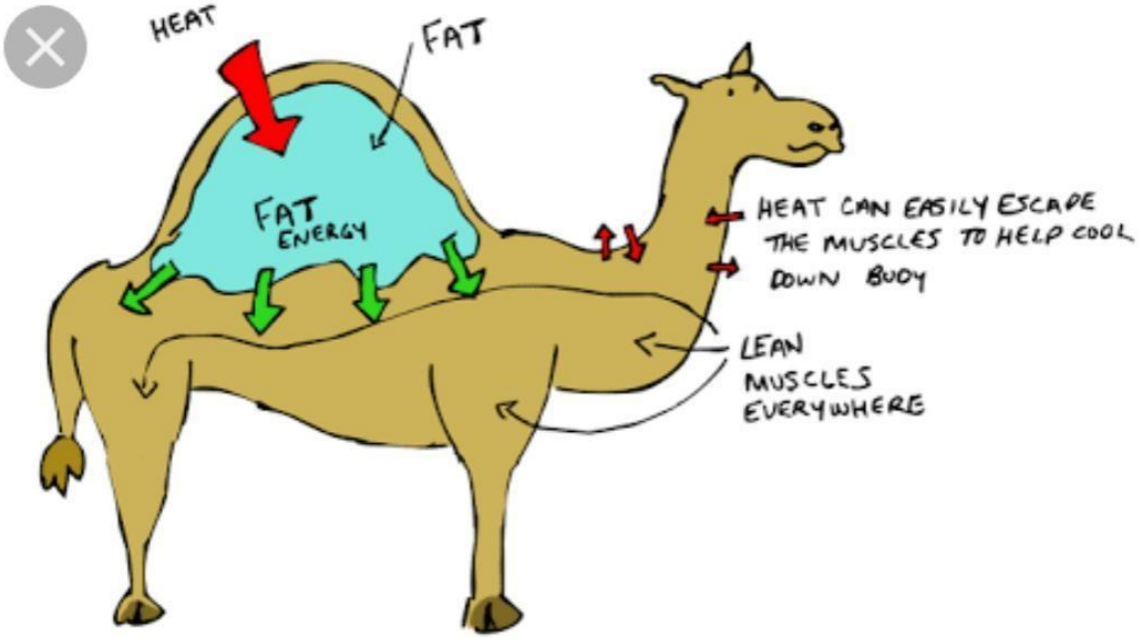
ZOOPLANKTONS ARE SECONDARY CONSUMERS. WHILE SHARK IS A TERTIARY CONSUMER.



Q12. DISTINGUISH BETWEEN ADAPTATION AND RESPONSE BY GIVING SUITABLE EXAMPLE.

A11. ADAPTATION IS ANY STRUCTURAL OR PHYSIOLOGICAL CHANGE THAT HELPS AN

ORGANISM TO SURVIVE IN ITS NATURAL HABITAT. FOR Eg : CAMELS HAVE A HUMP TO STORE WATER AND FOOD, WHICH HELPS THEM TO FIGHT SHORTAGE OF FOOD AND WATER.



WHILE RESPONSE IS BEHAVIOUR THAT AN ORGANISM EXHIBITS TO A RESPONSE...FOR Eg. WE SWEAT WHEN WE FEEL HOT OR WE SHIVER WHEN WE FEEL COLD.

Q13. DEFINE THESE TERMS.

1. PRIMARY CONSUMERS - THOSE ORGANISMS THAT FEED DIRECTLY ON THE PRODUCERS. Eg. HERBIVORES THAT EAT PLANTS WHICH ARE THE PRODUCERS OF FOOD.

2. SECONDARY CONSUMERS- THOSE ORGANISMS THAT FEED ON PRIMARY CONSUMERS FOR FOOD.FOR Eg. CARNIVORES THAT EAT HERBIVORES.

3. SCAVENGERS- THOSE ORGANISMS THAT FEED ON AND EAT DEAD AND DECAYING ORGANISMS.

THEY INDIRECTLY HELP IN MAINTAINING THE CLEANINESS OF OUR ENVIRONMENT BY SLOWLY ERADICATING THE DEAD MATTER. FOR eg. VULTURES, CROW.

DO IT YOURSELF.

1. WHY ARE POLAR BEARS NOT SPOTTED IN THAR DESERTS.?
2. DRAW A FOOD CHAIN MARKING PRODUCERS, PRIMARY CONSUMER, SECONDARY AND TERTIARY CONSUMERS.
3. PASTE THE PICTURES OF TWO PLANT AND TWO ANIMALS SHOWING ADAPTATIONS IN THEIR SURROUNDINGS.