BADSHA ALI MAKE ANOTHER FILE ZOO103 MID PREPARE THIS FILE AND BE HAPPY

Arthropods venom glands: Venoms serve two primary roles—defense and prey capture. There are three type of venom glands 1=Poison gland 2=Poison Duct 3=Fang

Define systematics: Systematics According to Simpson(1961)• Scientific study of kinds and diversity of organisms and of any or all relationship among them• Broad term which include Taxonomy, Nomenclature and Classification etc

Arthropods legs parts: Coxa• Traochant• Femur • Patella• Tibia• Metatarsu• Tarsus• Claws

Causes of speciation: 1=Geographical Isolation 2=Behavioural isolation 3=Reproductive isolation

Contribution to applied Biology:

• Agriculture and forestry • Biological control • Public health • Quarantine • Wild life management, Applied Biology • Mineral prospecting • National defense • Environmental problem • Soil fertility • In commerce

Agriculture and Forestry: • In order to control and minimize pest attack on crops and diseases caused by vector • It is necessary to know about correct names of pests • Taxonomists give us correct identification of pests • Identification is vital for control • Involved in designing biological control programs of pests • Determination of exact country of origin and their parasite and parasitoids is compulsory. • Asian citrus psylid is serious pest of citrus orchards • Its origin is Asia • Tamarixia radiata, a parasitic wasp was introduced from Pakistan to California to control this pest. • Best example of classical biological control.

Public Health: • Number of diseases are spread by Arthropods which are controlled by targeting specific species. • For example: All Anopheles maculipennis are not responsible for transmitting malaria. • Out six siblings some are involved in transmission of malaria. • Although the species are virtually indistinguishable morphologically, they are isolated reproductively, in part because they breed in different habitats. • Taxonomists help to identify this particular sibling species for effective control at minimum cost.

Jumping spider behavior: Jumping spiders are generally diurnal, active hunter. There well developed internal hydrolic system extend their limbs by altering the pressure of their body fluid (hemolymph) within them. This enables the spider to jump without having large muscular legs like a grasshopper.

Catalogue • Catalogue is mainly an index to the texa arrange in such a way that as to give a vivid picture of references for both zoological and nomenclatural purpose.

Catalogue of life• The **Catalogue of Life** is an online database• It provides the most comprehensive and authoritative index of known species of organisms • The Catalogue interface

is available in twelve language sand is used by research scientists, citizen scientists, educators, and policy makers

Components of systematics: Biodiversity• Taxonomy• Classification• Nomenclature• Biogeography• Evolutionary biology

sympatric speciation: • A speciation in which a species is evolved from a single common ancestral species while inhabiting the same geographical range.• Share the same habitat but become reproductively isolated from each other.• More common in plants

Morphology of animal: morphology, in biology, the study of the size, shape, and structure of animals, plants, and microorganisms and of the relationships of their constituent parts. Morphological characters include: • External morphology• Genetelic structure• Internal morphology• Embryology• Karyology and other cytological differences.

Random sampling: If every individual of target population has an equal chance of selection then it will be called random sampling.Simple random sampling is the easiest form of probability sampling. No biasness and expert opinion is required in this method.

Reproduction in Spiders• Male find a female• A male spider deposits his sperm into a sperm web, holding it in his palps.• Female spiders produce either one egg sac containing several to a thousand eggs or several egg sacs each with successively fewer eggs. Females of many species die after producing the last egg sac.

Identification of jumping spider: Color(black or brown ,tan ,gray,usually pale marking) , legs(8 pair of legs) ,shape (reletively with short legs), Antennae(no) , region (found in united states)

DNA hybridization: • This method is used to determine the genetic distance between two organisms• Mainly measure the genetic similarity.

Hybridization is the process of combining two complementary single-stranded DNA or RNA molecules and allowing them to form a single double-stranded molecule through base pairing.

Methods of texonomy keys: A taxonomic key is **a simple tool used to identify a specific object**. A taxonomic key is one of the most useful tools available to scientists trying to identify an unknown organism. Systematics rely on keys to help identify known organisms and determine whether they have discovered a new organism entirely.

Theoretical Biology: Theoretical biology is a subdiscipline of biology that may have a significant impact on the further development of biology. Its meaning for the biological sciences is comparable to the meaning of theoretical physics for the physical sciences. it includes • Evolution • Ecology • Molecular Biology • Evolutionary Biology

Evolution: • Evolution is a process by which plants and animals that exist today have been evolved from plants and animal of past.

Ecology • No through ecological surveys can be conducted without the identification of all species that are of ecological significance.

Molecular Biology • Molecular biologist use genetic data for establishing relationships among different organisms. **Examples:** DNA barcoding and taxonomist

coutship behavior in lynx spider: In a typical mating sequence of the green lynx spider, **courtship lasted 11 minutes**. Mating took 10 minutes, consisting of several copulations measured from the first approach of a male palpus to the female's epigynum until the final separa- tion.

Probability Sampling: • Random Sampling • Systematic Sampling • Stratified sampling • Cluster Sampling • Multistage Sampling

Random Sampling: If every individual of target population has an equal chance of selection then it will be called random sampling.Simple random sampling is the easiest form of probability sampling. No biasness and expert opinion is required in this method.

Systematic Sampling: In this sampling method first sample from the population is taken randomly but after that samples are selected systematically at a regular interval. Examples: • Shopping Centre

Stratified sampling: Stratified sampling is a probability sampling technique wherein the researcher divides the entire population into different subgroups or strata, then randomly selects the final subjects proportionally from the different strata.

Cluster Sampling: Cluster sampling is the sampling method where different groups within a population are used as a sample

Multistage Sampling: Multistage sampling is a method of obtaining a sample from a population by splitting a population into smaller and smaller groups and taking samples of individuals from the smallest resulting groups.

feeding process of jumping spiders: They are mostly carnivorous. Jumping spiders eat insects like flies, moths, and grasshoppers. They are predominantly carnivores, though they have been known to eat nectar. In general, jumping spiders eat anything they can get their chelicerae (jaws) around.

variations in insects: One way in which insects can be different is by the type of life cycles they have. Some insects will undergo an incomplete metamorphosis and will change from a nymph to an adult. There are other insects that will go through a complete metamorphosis that has many stages. These insects will start as larvae, which look very different from adults. When they emerge from their pupa, they will be newly formed adults. It is no surprise that entomologists enjoy studying the fascinating world of insects.

Paripatric speciation: • Peripatric speciation is a mode of speciation in which a new species is formed from an isolated peripheral population.

types of systematic sampling: Systematic random sampling 2=Linear systematic sampling 3=Circular systematic sampling.

postmortem variations: Postmortem changes begin soon after death and progress along a timeline. Two processes, putrefaction and autolysis, begin to alter the body; either one may predominate, depending on the circumstances surrounding death, as well as the climate. Putrefaction involves the action of bacteria on the tissues of the body.

Correlated Characters: • Characters which are functionally correlated have very low weight • They have low phylogenetic content • Do not deserve to be treated as separate character • Analogues organs birds wings, bats and insects (analogus)/convergent evolution • Redundant • Phyletic correlation • High weight • Higher genetic contents • Diagnostic characters of Deuterostomes and Chordates (concordance)----phyletic correlation—evolutionary related

Physiological Characters: • Metabolic activities • Body secretion • Serological protein and other biochemical differences • Genic sterility factor

Traumatic Variations: • Teratology is the study of abnormalities of physical development. • Taratogen are the toxic substances which cause abnormal development. • Mercury, alcohol, lead, thalidomide • Teratological variations are common in animals.• In those forms which undergo metamorphosis injury to an earlierstage may produce abnormalities which are not easily recognized. • Important if abnormality is in characters of taxonomic importance. • Modification in wing pattern

HISTORY OF TAXONOMY: Simpson in 1961 gives a valuable survey of History of Taxonomy. Taxonomy is as old as the language skill of mankind. • Taxonomy is the science of naming, describing and classifying organisms including all plants, animals and microorganisms of the world.

Ecological Variations: this includes A. Habitat Variation B. Variations induced by climatic conditions C. Host determined variations D. Density dependent variations E. Allometric variations F. Neurogenic color variations.

Evolutionary Species: Simpson (1940s) • An evolutionary species “is a single lineage of ancestor descendant populations of organisms which maintains its: • Identity from other such lineages [in space and time] • Own evolutionary tendencies • historical fate” (Wiley, 1981)

Weighing of Characters: Process to determine that which character is more reliable is called weighting. 1. Priori (before/without phyletic information) • Proposed by Artistotle 2. Posteriori • Proposed by Adenson (after phyletic information collection) • All classification is based on this model.