ZOO 103 100% FINAL TERM SOLVED PAPER 2022 BY SULMAN ALI

SUBJECTIVE + OBJECTIVE

Most imp 140 MCQs With most imp question

Peripatric speciation

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

Punctuated gradualism

In evolutionary biology, punctuated equilibrium (also called punctuated equilibria) is a theory that proposes that once a species appears in the fossil record, the population will become stable, showing little evolutionary change for most of its geological history.

Two way Anova

In two-way ANOVA there are two independent variables and one dependent variable. In one-way ANOVA there was only one independent variable .The population must be close to a normal distribution. Samples must be independent.
Population variances must be equal.

Conditions for t test

The conditions required to conduct a t-test include the measured values in ratio scale or interval scale, simple random extraction, homogeneity of variance, appropriate sample size, and normal distribution of data.

How silk gland secreted

The silk gland is the only organ where silk proteins are synthesized and secreted in the silkworm, Bombyx mori. Silk proteins are stored in the lumen of the silk gland for around eight days during the fifth instar. Determining their dynamic changes is helpful for clarifying the secretion mechanism of silk proteins.

Control of yellow stem borer

Destruction of weeds harbouring pests • Pulling out infested rice plant • Flooding the field after harvest • Stubble (short cut stalks) left after harvest should be • ploughed up and burn or submerged in water immediately after harvest • Crop rotation

Charecterstics of reptiles

- Reptiles are vertebrates. They have backbones.
- Their bodies are completely covered with scales.
- They are cold-blooded.
- Reptiles produce shelled eggs or bear live young.
- All species fertilize eggs internally.

All species of reptiles have at least one lung.

Body parts of scorpion

The body of a scorpion is divided into two parts or tagmata: the cephalothorax or prosoma, and the abdomen or opisthosoma. The opisthosoma is subdivided into a broad anterior portion, the mesosoma or pre-abdomen, and a narrow tail-like posterior, the metasoma or post-abdomen.

Cephalothorax of spider

Cephalic region has 6-8 eyes •Eyes or black or diurnal •White or nocturnal •If only one type of eyes (homogenous) •If both type of eyes or present (heterogeneous)
Usually arranged in two rows•Each row usually contain 4 eyes. •Rows of eyes are frequently curved. •Anterior median/Anterior lateral •Posterior
median/Posterior lateral• Cephalic area of eyes is called **ocular area.** •Area of four median eyes is called ocular quad. •The area between anterior row of eyes and
anterior margin of carapace is **clypeus** •The depression in the middle of thorax
is called **thoracic groove or fovea.**

Rice leaf folder mode of demage and control

Damage

• Larval stage is damaging
•All stages of plants are damaged by this pest
• Newly hatched caterpillar cut leaf edges and folds the leaf
• Infested leaves appear white
• Attacked plant dries up
• Yield loss vary from 10-50%

Control

• Reform tillage and cultivation system
• Light trap or lure can be used.
• Utilize natural enemies (beetles and *Trichogramma* spp.) as biological control
• Application of chlorpyrifos EC 1000ml/acre

Characteristics of molusca

They are mostly found in marine and freshwater. …
They exhibit organ system level of organization.
Their body has a cavity.
The body is divided into head, visceral mass, muscular foot and mantle.

Difference b/w Sample standard deviation and population standard deviation

• A sample standard deviation is a statistic. This means that it is
calculated from only some of the individuals in a population.
• The population standard deviation is a parameter, which is a fixed value calculated from every individual in the population.

Note on sericulture in Pakistan

Despite the growing demand for natural silk, this industry could not flourish in Pakistan.
• This industry is facing numerous challenges such as lack of trained personnel, high mortality rate in local silk breed, and poor economic conditions of the farmers. • Unfortunately, this industry has not been on the list of priorities of us Government.
• Provide livelihood for rural poor families but silk proteins also have wide range of applications in textile, food, cosmetics and pharmaceutical industry as well as in traditional medicines.
• Currently, Pakistan is importing about 70% raw silk to meet the demand of local market.

Epigyne

Females genetal organ is also present on ventral side of the abdomen. It is called epigyne.

Who introduced pronghorn

In 1855 John Edward Gray published the name of Pronghorn

Classification of green lacewings

Green lacewings are an often under-appreciated group of beneficial insects.
The adult green lacewing is about 3/4 inch long, light green and has a delicate appearance with lacy wings. • One unusual characteristic are its eyes, they look like two golden hemispheres. • They are weak fliers and are commonly found near aphid colonies.

Classification of whitefly.

Whiteflies are Hemipterans that typically feed on the undersides of plant leaves. They comprise the family Aleyrodidae, the only family in the superfamily Aleyrodoidea. More than 1550 species have been described.Kingdom animalia ,phylum Arthropoda,class insecta,order hemipetra.

Define and example of homology structure

Homologous structures are similar physical features in organisms that share a common ancestor, but the features serve completely different functions. An example of homologous structures are the limbs of humans, cats, whales, and bats

Parametric test list

Parametric tests are used for
Normal data •, T-test •, Z-test •, F-test• ,ANOVA ,Regression ,correlation

Classification of fly upto family

Kingdom>Animalia ,Phylum >Arthropoda ,class>insecta ,order >dipetra

Three types of sponges

The approximately 5,000 living sponge species are classified in the phylum Porifera, which is composed of three distinct groups, the Hexactinellida (glass sponges), the Demospongia, and the Calcariea (calcareous sponges).

Composition of silkworm.

silkworm consists of two main proteins, sericin and fibroin, fibroin being the structural center of the silk, and serecin being the sticky material surrounding it.
Chemical Composition of Silk Fiber: · Fibroin: 75% · Ash of Silk Fibroin: 0.5% · Sericin: 22.5% · Fat and Wax: 1.5% · Mineral Salt: 0.5%

Characteristics of chordates

Five characteristic features of chordates present during some time of their life cycles

are a notochord, a dorsal hollow tubular nerve cord, pharyngeal slits, endostyle/thyroid gland, and a post-anal tail.

Paracitised

A parasitoid is an organism that has young that develop on or within another organism (the host), eventually killing it. • **Parasitoids** have characteristics of both predators and parasites.

Allelic frequiences of(p2 q2 2pq)

P = frequency of Allele A
q = Frequency of Allele a
2pq= Frequency of Aa genotype

Priori

(before/without phyletic information) • Proposed by Artistotle

Posteriori

• Proposed by Adenson (after phyletic information collection) • All classification is based on this model.

Define acculmulation curve

The species discovery curve or species accumulation curve is a graph recording the cumulative number of species of living things recorded in a particular environment as a function of the cumulative effort expended searching for them.

Define polytype species

A species contains two or more subspecies • Examples are tiger, *Panthera tigris* which has several subspecies.

Mullerian Mimicry

• Mullerian mimicry is the form of protective mimicry in which two or more distasteful or harmful species especially insects, closely resemble each other and therefore avoided equally by all their natural predators (Muller (1821-1897)/German born Brazilian Zoologist

Amniotes Vs Anamniotes

• Amniotes and Anamniotes are two vertebrates' groups.
• Amniotes are higher vertebrates including reptiles, birds, and mammals
• Anamniotes are lower vertebrates including fishes and amphibians.

The anamniotes are an informal group comprising the fishes and the amphibians, the so-called "lower vertebrates", which lay their eggs in water.

• They are distinguished from the amniotes, the "higher vertebrates" (reptiles, birds and mammals), which lay their eggs on land or retain the fertilized egg within the mother.

Phylogram

Phylogram is a tree with branching that are proportional to the evolutionary distances.

How Jumping spiders are generally recognized

Jumping spiders are generally recognized by their eye pattern. • All jumping spiders have four pairs of eyes, with the anterior median pair being particularly large

Standard Deviation

• It is positive square root of variance. • Standard deviation "provides a sort of average of the differences of all scores from the mean. • It is a measure of the dispersion of scores around the mean. • Generally, a low standard deviation means that a set of scores is not very widely dispersed around the mean. Standard Deviation • While a high standard deviation indicates that the scores are more widely dispersed • Its advantage over variance is that its physical unit are same as that of individual observations.

HISTORY OF TAXONOMY

- By the mid of 18th century shortcomings of downward classification system were recognized.
- Gradually replaced by upward classification system
- It consists of assembling species by inspection into groups of similar and related species and forming hierarchy by again grouping of similar taxa of next lower rank.
- Buffon in 1749 supported this system. • He said that the only way to design a method is to group together the things that resemble each other and separate the things that differ from each other
- Anderson 1763 (Botanist) applied this design for the classification of plants
- Cuvier recognized five phyla
- Van Baer, Owen divided all species into limited no. of groups each representing a distinct type

Methods of using taxonomic keys

• Read introductory comments, format of the key, abbreviations etc before using key • Read both choices at each step of the key • Use glossary to find out the definition of any term your do not understood • Use a ruler if measurements are needed, do not guess • Examine several specimens of same species

Parts of references

• Name of authors • Year of publication • Title/topic of article • Name of Journal • Volume number • Issue number • Page number

DNA hybridization

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

Nominnalistic Species Concept

• According to this concept " Nature produces individuals and nothing more" • It is also known as Linneaus species concept. • Proponents of this concept (Buffon, Bessey, Lamark etc.) belive that only individuals exits but they do not believe in existence of species.

Lady beetle

• Ladybugs, also called lady beetles or ladybird beetles, are a very beneficial group. • They are natural enemies of many insects, especially aphids and other sap feeders. • A single lady beetle may eat as many as 5,000 aphids in its lifetime.

Parametric tests

Parametric tests are used for Normal data • T-test • Z-test • F-test • ANOVA • Regression • Correlation

Phylum Mollusca

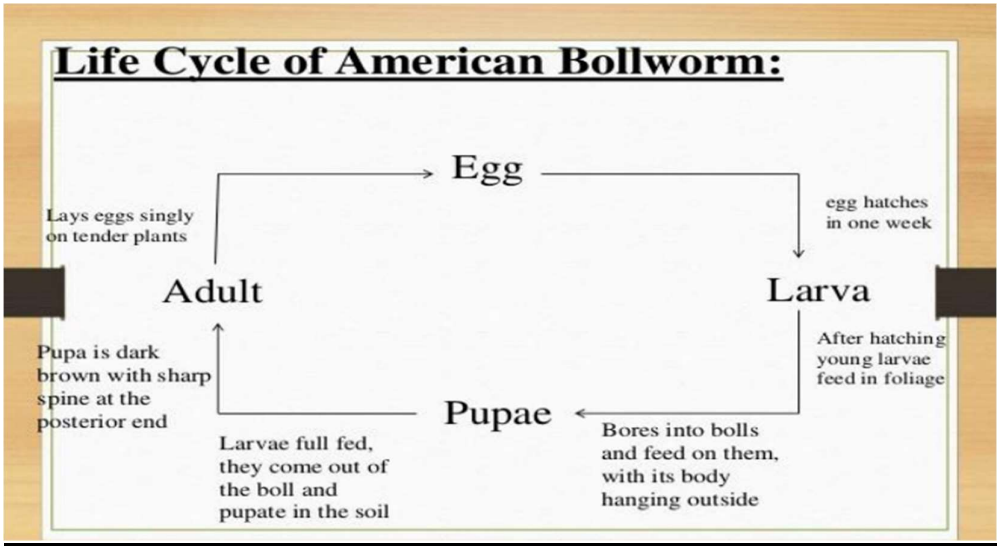
• They are mostly marine. • They have segmented body with distinct head, muscular foot and visceral hump. • They show bilateral symmetry. • The shell may be external, internal or absent. It is secreted by mantle and made up of calcium carbonate.

Jassids

• Major sucking pests of cotton. • Eggs yellowish white • Nymphs and adults are greenish yellow with a black spot on tip of each forewing. • Jump on disturbing
• Nymphs and adults both suck sap. • Leaves first show yellow and then reddish spots. • Attacked leaves turn downwards, dry and fall • Plants become weak and their fruit fall

Classification of Bollworm

Phylum	Arthropoda
Class	Insecta
Order	Lepidoptera
Family	Noctuoidea
Genus	Helicoverpa
Species	*H. armigera*



Herbivores-
Animals that only eat plant. … Rabbits, Goat, sheep, grasshoppers etc

Carnivores

Animals eat only other animals. … dog, lion

Omnivores

- Animals that eat both plants and animals. … Man, fox, Rats, crows

Detrivores or Scavengers

Animals that eat the remains of died animal Earthworm

Types of gland:

Salivary glands - secrete saliva, sweat glands- secrete sweat. Mammary glands- secrete milk, Endocrine glands - secrete hormones.etc

characteristic of spiders 5

1. These characteristics include bodies divided into two tagmata (sections or segments),
2. eight jointed legs,
3. no wings or antennae,
4. the presence of chelicerae and pedipalps,
5. simple eyes, exoskeleton, which is periodically shed.

Define poison:

1a: a substance that through its chemical action usually kills, injures, or impairs an organism. b(1 : something destructive or harmful. (2): an object of aversion or abhorrence. 2 a substance that inhibits the activity of another substance or the course of a reaction or process a catalyst poison.

venom glands in arthropods:

The vesicle of the telson contains a pair of symmetrically localized venom glands. Each gland is provided with medial and dorsal compressor muscles that press the gland against the cuticle along its exterior lateral and ventral surfaces. The glands are separated by a median vertical muscular septum. Each gland is provided with an exit duct, which communicates to the exterior via two apertures just before the tip of the oculeus.

Classification of Bug

Phylum	Arthropoda
Class	Insecta
Order	Hemiptera
Family	Pentatomidae
Sub-Family	Asopinae

lineages of arthropods

- Trilobites – extinct
- Chelicerates – horseshoe crabs, spiders
- Uniramians – centipedes, millipedes, insects
- Crustaceans – crabs, lobsters, barnacles

Classification of fly upto family 3

Phylum	>Arthropoda ,
Class	>insecta ,
order	>dipetra
Family	

What is nominalism theory?

Nominalism, coming from the Latin word nominalis meaning "of or pertaining to names", is the ontological theory that reality is only made up of particular items. It denies the real

existence of any general entities such as properties, species, universals, sets, or other categories.

What are non-genetic characteristics?

Non-genetic inheritance could be, for example, maternal body size or some form of parental behaviour that may influence offspring development. It could also be an epigenetic mark, such as the level of methylation of a particular DNA sequence in the parental zygote.

on the basis of coelom animal are divided into how many groups and example also 5

Coelom

Body cavity between the body wall and alimentary canal

1. **Acoelomates** Coelenterates, Platyhelminthes
2. **Coelomates** Mollusk, Annelids, Arthropod, Echinoderms, Vertebrates etc
3. **Pseudocoelomates** Nematodes

Examples of Annelids 2

1. Earthworm
2. Leeches
3. Polychaetes

Hardy Weinberg Equilibrium Model 5

In a population, there are 320 AA individuals, 160 heterozygous and 20 aa individuals Calculate the genotypic andallelic frequencies,

Genotypes	AA	Aa	aa
Number of individuals	320	160	20
Genotypic frequencies	320/500=0.64	16/500=0.32	20/500=0.04

Allelic Frequencies	
A	320+320+160/1000 =0.8
a	160+40/1000 =0.2

OBJECTIVES

1. Since they do not have antennae, spiders use specialized and **sensitive setae** on their legs to pick up scent, sounds, vibrations, and air currents
2. Some spiders, such as the **Australian crab spiders** do not have claws
3. The pedipalps have only six segments the **metatarsus** is missing
4. The abdomen is also known as the **opisthosoma**
5. On the ventral side of the abdomen are two hardened plates covering the book lungs These are called the **epigastric plates**
6. A fold, known as the **epigastric furrow** , separates the region of the book lungs and epigyne
7. The abdomen of spiders has modified pairs of movable telescoping organs called **spinnerets** which produce silk
8. The suborder **Mesothelae** is unique in having only two types of silk glands thought to be the ancestral condition
9. Spider silk is incredibly strong and flexible Five times as strong as an equal mass **of steel** and twice as strong as an equal mass of **Kevlar**
10. **Setae** are thick hairs which cover the legs, body, and pedipalps
11. Also located on the pedipalps are smaller hairs known as **trichobothria**, which sense air vibrations

12. The telson is present in **Metasoma**
13. Metasoma is also called as **post abdomen**
14. The telson consists of the vesicle, which holds a pair of venom glands, and the hypodermic **aculeus,** the venom injecting sting
15. Each chelicera comprises three parts a **coxa, tibia** which has a fixed finger, and the **tarsus** forming a moveable finger
16. A **Monograph** is a complete global account of a taxon of any rank family, genus or species ata given time
17. Body of spidersis divided into two main divisions (**Prosoma and Opisthosoma)**
18. Birds are ladybugs' main **predators**, but they also fall victim to frogs, wasps, spiders, and dragonflies**.**
19. The adult green lacewing is about **3/4 inch** long, light green
20. The larvae of Green lacewingare brown and white and may grow up to **about l/2 inch** in length.Larvae are called **aphidlions**,
21. **Pentatomidae** is a family of insects belonging to the order **Hemiptera** , generally called **shield bugs or stink bugs**
22. Pentatomidae has over **4700 species**
23. Moderate to large size, ranging in engths from **7 to 25 mm**, and are broadly elliptical in shape
24. About 300 species in **69 genera** have been described worldwide.
25. The psyllid vectors the phloem imited gram negative bacterium Candidatus Liberibact er asiaticus, one of the causal organisms of the devastating citrus disease **" huanglongbing**"
26. **Tamarixia radiata** was first imported to Florida **from Taiwan and south Vietnam** and limited numbers were released soon after psyllid was discovered in the state.
27. Tamarixia radiata was first described from **northwestern India (Punjab)** which is now part of Pakistan.
28. Development rate varies with temperature. It takes about **12 days** to go from egg to adult at 25 ºC and 14L:10D.
29. A single female can lay up to **300 eggs at 25 30 ºC**
30. Whitefly There **are1550 species** worldwide under two subfamilies.**70 in Punjab** Pakistan
31. Adult whiteflies are small, approximately **1- 2 mm** in length
32. Adults with wingspan less than **3mm**.With a yellow body and **two pairs** of white wings.
33. Whitefly The pupae or fourth nymphal stage bear **7** pairs of setae on their dorsum. It is called **pseudopupa**
34. **160 host** plants.
35. Whitefly Females can lay **10 -150 eggs** in her lifetime, often in fairy rings
36. Yellow stem borer Adults are active after dusk, mate Female lay eggs **120 -150** underside leaves
37. Most silk worm females lay **150-300 eggs** over the course of 1-2 days, some can lay as many as 1000 also
38. American Bollworm The body length varies between **12 and 20 millimeters** with a wingspan of **30 -40 millimeters**.
39. **Jassids** Major sucking pests of cotton.
40. **Aphids** can also produce large quantities of a sticky exudates known **as honeydew**, which often turns.
41. **Phenon** A term used for the different forms or phenotypes that may occur within a single population.
42. Mulberry plants grow **15-37 degree** temperature 600-2500mm rainfall

43. Lac Insect movement of larvae from female cell to the new offshoots of host plant, is termed as **swarming".**
44. Prior to about two weeks of hatching, lac bearing sticks are cut to the size of six inches. They are called "**Brood lac".**
45. Lac cut from the host plant is called as "**stick lac".**
46. **Ari lac** (if used before emergence of larvae)
47. **Phunki lac** (if used after swarming of larvae)
48. In order to remove the finer particles of dirt and colour, this lac is washed repeatedly with cold water**. "Seed lac"**
49. **Bleach lac** is a refined product obtained by chemical process.
50. **Shell lac** is dissolved in Sodium carbonate solution and bleaching the solution with Sodiumhypochlorite.
51. **Sibling species** are very similar in appearance, behaviour and other characteristics but they are reproductively isolated.
52. Species that contain two or more subspecies are called **polytypic** species.
53. Species that are not subdivided into subspecies are called **monotypic** species.
54. In animals 40-80% are **polytypic** Formenkries and rassenkries are the order terms **for polytypic** species
55. **Phnetics methods** construct threes (phenogram) by considering the current states of characters without considering the evolutionary history that brought the species to their current phenotype.
56. **cladistics method** depend on the assumptions about ancestral relationships as well as current state
57. In **cladistics approach** trees are drawn based on conserved characters
58. **Phenetic approach** trees are drawn based on some measurements of morphological traits.
59. **Molecular phylogenies** are inferred from molecular data (DNA sequence, Protein sequence Phenetics or cladistics or mixture of both 60. Traditional taxonomy is based on **phenetics.**

61. Phenetics is based on overall similarity to group organisms into hierarchical levels called **Taxonomic groups**. 62. **Phylogram** is a tree with branching that are proportional to the evolutionary distances. • It is more informative

63. The tail bone in human is a homologous structure to the beginning of many animals' tails, such as monkeys. It is known as a "**vestigial structure"**
64. All organisms contain homologous plasma membranes with what is called a **phospholipid bilayer.**
65. A **parasitoid** is an organism that has young that develop on or within another organism (the host), eventually killing it.
66. **Wasmannian mimicry is** a mimicry in which the mimics resembles its host in order to live within the same nest or structure.
67. **Worm Blooded animals** They maintain their body temperature Examples: Birds, Mammals
68. **Cold Blooded animals** Do not maintain their body temperature Examples: Amphibians, Fishes
69. **Ectotherms** Produce metabolic heat at low level and quickly exchange with environment. Absorb heat from surroundings to maintain body temperature Examples: invertebrates, Amphibians, Fishes etc

70. **Enthotherm** Generate own body heat for temperature regulate Examples: Birds, some fishes, flying insects, mammals
71. **Heterotherms** Capable of producing endothermic heat but generally do not use this to regulate their body temperature within a narrow range Examples: Bats, humming birds etc.
72. **Coelom** Body cavity between body wall and alimentary canal
73. **Acoelomates:** Coelenterates, Platyhelminthes
74. **Coelomate**s: Mollusk, Annelids, Arthropod, Echinoderms, Vertebrates etc.
75. **Pseudocoelomates**: Nematodes
76. **Protostomes** Any member of the lower invertebrate phyla in which the mouth appears before the anus during development, Examples: Leeches, Insects,
77. **Deuterostomes** In deuterostomes, the first cavity formed by the blastopore ends up as the organism's anus, while the mouth is formed secondarily on the opposite side Echinodermata • Chordates include marine and terrestrial animals
78. **radial symmetry** generates identical body halves around the **central axis** whereas bilateral symmetry generates only two sides **as left and right**.
79. Invertebrates comprise approximately **97% of** the animal kingdom.
80. Amniotes are **higher vertebrates** including reptiles, birds, and mammals
81. Anamniotes are **lower vertebrates** including fishes and amphibians.
82. **Herbivores**- Animals that only eat plant. … Rabbits, Goat, sheep, grasshoppers etc
83. **Carnivore**s - Animals eat only other animals. … dog, lion
84. **Omnivores-** Animals that eat both plants and animals. … Man, fox, Rats, crows **85. Detrivores or** ScavengersAnimals that eat the remains of died animal Earthworm

86. Coelentrata also known as **Cnidaria**.

87. In Mollusca Blood is blue due to copper containing blue respiratory pigment **called haemocyanin**.

88. Prokaryotes are organisms made up of cells that **lack a cell nucleus** or any membrane-encased organelles.

89. Eukaryotes are organisms made up of cells that possess a membrane-bound nucleus that holds genetic material as well as membrane-bound organelles.

85. CarolusLinnaeus, father of modern taxonomy. Three kingdoms were: • ***Animals•Plantsand•Minerals***
86. **Aristotle-Father of Biological Classification**
87. According to Simpson(1961) taxon is a group of real organisms recognized as formal unit at any level of hierarchic classification
88. Elton(1947) acknowledged the progress in ecology depends upon accurate identifications of species.
89. During WorldWar II (OnNovember3, 1944),**Japan** released **balloonbombs**,In to the Pacificjetstream
90. Viruses are DNA and RNA shielded by protein coat called capsid.
91. E-Chatton in 1937 introduced the term"Procariotique"to describebacteriaand "Eucariotique"todescribe animalsandplantcells.
92. Five kingdom classification was proposed by Robert Whitta ker in 1967.
93. Morgulis and Schwatz in1988 modified R.Whittaker classification.
94. Native tribes used to call the species on the basis of their morphological characters

95. Simpson in1961 published extensively on the taxonomy of fossil and extinct mammals.
96. Thomas E.Mittler was an Austrian entomologist.
97. Frederick Smith work edin the zoology department of British Museumfrom1849. he describe 25genera,702 species
98. Mayr in1982 provided a details of various periods of History of Taxonomy
99. Buffon prepared the way for the biological species concept,
100. Anderson 1763 (Botanist) applied this design for the classification of plants
101. Cuvier recognized five phyla
102. Van Baer,Owen divided all species in to limited no. of groups each representing a distinct type
103. By 1955 taxonomy reach such a status that it was called taxonomic explosion
104. The species which are found in a particular region,called endemic species.
105. A cline is the gradual change in the phenotypes and genotypes
106. A clade is a group of organisms that evolved from a common ancestor 23. Typological species concept This concept was proposed by Aristotle and Plato
107. Electrophoretic This method determine the in the isozyme and allozyme.
108. Process to determine that which character is more reliable is called weighting.
109. Long-life in some species up to 30 years.
110. When newly hatched nymphs of locust are reared under crowded conditions Gregarious phase
111. Less crowded conditions transitional phase
112. Separate rearing Solitary phase
113. These phases differ in anatomy,colour and behavioral characteristics distinct species
114. A curator is a person Curation is process
115. When the holotype of the species is the only specimen known to science, it is known as monotype.
116. Specimens collected at type locality are called Topotypes.
117. Population that occurs at the type locality is called Topotypical population.
118. Conservation can may be avoided in Zoology as these names fall in formal category of Nomen oblitum.
119. A name published without satisfying the condition of availability is called nomen nudum
120. First phylogenetic tree based on molecular data 1967 Fitch and Margoliash.
121. These most commonly published keys were first published by Jean B.Lamark 1778
122. Spiders have two body segments Front segment is called Cephalothorax 2nd part is abdomen
123. 99% of all spiders have 8 eyes
124. Pedipalps are the second pair of appendages of chelicerates
125. epigyne or epigynum is the external genital structure of female spiders
126. **Asian citrus psylid is *Tamarixia radiata,***
127. Two or more than two closely related species which are morphologically alike ***Sibling Species***
128. ***Peripatric speciation*** is a mode of speciation in which a new species is formed from an isolated peripheral population.
129. ***Karyology*** is description of size, shape and number of chromosomes
130. Geographic characters are important at two levels ***Microtaxonomy ,Macrotaxonomy***
131. Feed at night Family ***Lycosidae***
132. Singa are ***about 2 mm*** in length while some of the Nephila can grow to ***over 50 mm,***

133. Family Salticidae Largest family of spider ***13%*** of all species
134. Based on computer program ***Polyclave Key***
135. There are an estimated ***14M*** mainly unpublished species.
136. First phylogenetic tree based on molecular data 1967 ***Fitch and Margoliash.***
137. The first Scientific name applied to the leopard shark was ***Triakis californica***
138. A ***curator*** is a person who manages, administers or organizes a collection for exhibition.
139. When newly hatched nymphs of locust are reared under crowded conditions ***Gregarious phase***
140. European Starling In spring whole bird is glossy ***black*** without the mold of single feather

BEST OF LUCK