Insects and People - Entomology 101

Sample Test Questions - Examination 1 – Fall 2006

What are the titles of the two "texts" in this course and who are the authors?

1. From where are the terms entomology and insect derived? What do they mean?

2. What are six characteristics that animals in the Phylum Arthropoda share?

3. Besides insects, name six commonly encountered arthropods.

4. What are five characteristics that animals in the Class Hexapoda (Insecta) share?

5. Please define the terms: 1) primitively wingless, 2) secondarily wingless, and 3) brachypterous. Give examples of insects that are primitively wingless and secondarily wingless.

6. What are the feeding habits (what do they eat) of insets in the following orders: 1) Homoptera, 2) Neuroptera, 3) Isoptera, 4) Siphonaptera.

7. Name five ways in which insects are important or beneficial to humans. Name five ways in which insects are detrimental to humans.

8. What does the term tagmosis mean? Into how many tagma are insects divided?

9. What are three advantages of the exoskeleton of an insect?

10. What are four basic types of mouthparts found in insects?

11. What is the main function of structures on the thorax of an insect? Describe the structures.

12. What is an ovipositor? How is it used?

13. Discuss, in as much detail as possible, the structure of the insect digestive system.

14. Discuss, in as much detail as possible, the structure of the insect respiratory system. Is it different than the human respiratory system (explain in some slight detail - not just yes or no!).

15. How do insects rid themselves of nitrogenous waste products? Does the habitat in which the insect lives make a difference as to how they do it?

16. What is the function of the circulatory system in insects (is it the same as in humans)? Please describe the system in as much detail as possible. What are some functions of insect blood cells?

17. What does the term metamorphosis mean (in relation to insects)? What "types" of metamorphosis are found in insects? What is a "stage" and what stages are found in insects with the three differing types of metamorphosis?

18. What is the difference between a larva and a nymph?

19. Please list the categories in the hierarchical system of classification used by biologists (with Kingdom as the most inclusive category)

20. Of what does the "scientific name" of a species consist?

21. What is the biological species concept? What criteria must be met?

22. What do taxonomists and systmatists do? Are they different specialties?

23. In the arthropod subphylum Chelicerata, into how many tagma is the body divided? What are they?

24. What is the most visible, morphological differences between millipedes and centipedes?

25. On what do mites feed? On what do ticks feed?

26. Name three orders of insects that exhibit simple or gradual metamorphosis. Name three orders of insects that exhibit complex or complete metamorphosis.

27. Where to Ephemeroptera (mayflies) live as immatures? Do mayflies serve any beneficial purposes (to us or the ecosystem)?

28. What are ootheca? In what orders of insets would be find an ootehcum?

29. Why are termites detrimental to humans? What symbiotic relationship allows them their lifestyle?

30. What type of metamorphosis do we find in lice (Phthiraptera). On what do lice feed? What are some of the eggs of lice called?

31. What type of metamorphosis do we find in Diptera? What is unusual about the wings of Diptera? Describe at least two types of mouthparts found in Diptera.

32. What are the common names of the three primary types of insects found in the Order Hymenoptera? What type of metamorphosis do Hymenoptera have? Discuss two life styles found in Hymenoptera.

33. What type of mouthparts are found in: 1) adult Coleoptera, 2) sucking lice, 3) mosquitoes, 4) immature Lepidoptera, 5) praying mantids? On what does each feed?

34. Discuss the insect exocuticle. What are the primary layers? What advantages does an exoskeleton provide? What are problems with having an exoskeleton?

Multiple Choice

Which of the following is not a stage in the development of an insect with incomplete metamorphosis?
a. egg
b. immature
c. pupa
d. adult

In an entomological sense, nits are
a. the eggs of insects that are placed into the soil (such as grasshoppers)
b. the eggs of insects that are glued to the hairs of the host (such as human head lice)
c. the eggs of insects that are placed in a "case" (such as praying mantids)

d. the eggs of insects that are deposited in the water (such as dragonflies)

In the hierarchical classification system of classification used by biologists, which is the most inclusive category
a. phylum
b. species
c. family
d. kingdom

In which order of insects do the individuals rely upon internal gut symbionts (protozoa living in their digestive systems) to digest wood and make it available for nutritional needs?
a. Isoptera (termites)
b. Odonata (dragonflies and damselflies)
c. Lepidoptera (butterflies and moths)
d. Thysanura (bristletails)

Omnivores are insects that feed on
a. other insects (as predators or parasites)
b. dead and decaying animals and plants
c. wood, with the help of internal gut protozoans that actually digest the wood
d. plants in general

Ootheca are "cases" in which some insects place their eggs for various reasons. In what two orders of insects do we characteristically find the use of an oothecum?
a. termites and cockroaches
b. dragonflies and beetles
c. termites and praying mantids
d. cockroaches and praying mantids

The term entomology is used for the study of insects. What does the term actually mean in "English" when translated from the Greek?
a. the study of animals that have six legs
b. the study of animals that are notched, incised, cut into, or consist of segments
c. the study of animals that have three body parts
d. the study of animals that have an exoskeleton

Which of the following characteristics is NOT shared by all arthropods
a. an exoskeleton
b. an open circulatory system
c. a body divided into three primary regions or tagma
d. bilateral symmetry

What are the common names of the three main types of insects found in the order Hymenoptera?
a. bees, wasps, and bollweevils
b. bees, beeflies, and wasps
c. bees, wasps, and ants
d. ants, bees, and beeflies

In which of the following orders of insects are all of the immatures aquatic?
a. mayflies, stoneflies, and caddisflies
b. dragonflies, true flies, and true bugs
c. mayflies, caddisflies, and earwigs
d. caddisflies, true flies, and bristletails

Insects in the order Diptera (true flies) are somewhat unusual in that most have
a. only two wings
b. only four legs
c. only two tagma
d. two pair of antennae (four total)

Which of the following orders of insects would be considered secondarily wingless
a. earwigs and fleas
b. lice and fleas
c. stoneflies and fleas
d. fleas and beetles

What type of mouthparts do we find in adult butterflies and moths and immature butterflies and moths (order Lepidoptera)?
a. piercing/sucking and piercing/sucking
b. piercing/sucking and chewing
c. siphoning and chewing
d. siphoning and scraping

In a discussion of insects, what would a tagma be?
a. a number of body segments that are grouped into a distinct, functional unit
b. another name for the thorax, the locomotion "section" of an insect
c. the form in which a male and female dragonfly connect to each other when mating
d. another name for a body segment on which a leg or wing is located

In insects, which layer of the exoskeleton is alive and secretes the upper, non-living layers of the exoskeleton?
a. the epicuticle
b. the exocuticle
c. the endocuticle
d. the epidermis (hypodermis)

Which nitrogenous waste product is the most toxic and is produced only in insects that live in water?
a. urea
b. ammonia
c. uric acid
d. they are all equally toxic

Which of the following presents the respiratory system components in the correct order (outside→inside)
a. spiracle→tracheal tubes→tracheoles→oxygen to cell
b. spiracle→tracheoles→tracheal tubes→oxygen to cell
c. oxygen to cell→tracheoles→tracheal tubes→spiracle
d. tracheal tubes→tracheoles→spiracle→oxygen to cell

The ovipositor is a device found in insects that is used for
a. egg laying
b. defense/stinging
c. detect odors
d. both a and b

The process in which female insects produce offspring without mating (such as we find in some species of aphids) is termed
a. dioecious reproduction
b. parthenogenetic reproduction
c. oviviporous reproduction
d. recombinant reproduction

As adults, sucking lice feed on blood. As immatures or nymphs, sucking lice feed on
a. blood
b. material in the nesting or bedding of the host animal
c. living skin cells
d. the fecal material of the host animal

As adults, fleas feed on blood. As immatures or larvae, fleas feed on
a. blood
b. material in the nesting or bedding of the host animal
c. living skin cells
d. the fecal material of the host animal

Metamorphosis and molting in insects primarily is controlled by
a. photoperiod (day length)
b. pheromones
c. hormones
d. temperature

In the insect digestive system, the _____ is/are lined with cuticle (intima or exoskeleton)
a. foregut
b. midgut
c. hindgut
d. foregut and hindgut

The process by which an insect sheds its exoskeleton and develops a new one is called
a. cuticulosis
b. molting
c. ecdysis
d. suturing

Insects are composed of three tagma - they are the
a. egg, nymph, adult
b. pro-, meso, and metathorax
c. fore-, mid-, and hindgut
d. head, thorax, and abdomen

The layer of the exoskeleton that primarily is responsible for waterproofing is the
a. wax
b. cement
c. cuticulin
d. basement membrane

The scales on the wings of a butterfly or moth are modified
a. resilin cells
b. elytra
c. setae

d. spurs

In insects with complete (Holometabolous) metamorphosis, the immature is called a
a. nymph
b. larva
c. naiad
d. young

In the tradition of the Nez Perce native Americans, the animal that served as a storyteller and the object of many stories that were meant to convey a moral was
a. mosquito
b. cricket
c. coyote
d. bear

Which of the following is NOT a primary function of the inset blood (haemolymph)
a. the storage of water and various ions
b. the transportation of nutrients, hormones, waste
c. wound healing, coagulation, protection against infection
d. the transportation of oxygen through the body

Aphids feed on large amounts of plant juices, much of which is passed through the body. You may notice this material on your car if you happen to park under a maple tree. What is this aphid fecal material called
a. honeydew
b. nectar
c. aphid honey
d. aphidew

If one were to visit a typical South American jungle in Brazil, capture all of the organisms and take biomass readings, which would weigh the most
a. the birds
b. the humans
c. the insects
d. the combined arthropods

The external openings of the insect respiratory (breathing) system are called
a. tracheae
b. ootheca
c. spiracles
d. tracheal end cells

An oothecum (the egg case of an mantid or cockroach) is formed by secretions from the
a. spermatheca
b. spermatophore
c. median oviduct
d. accessory glands

The simple eyes of insects that do not form images but are involved in light intensity and day length recognition are called
a. hexagonal cells
b. facets
c. visual acuteness cells
d. ocelli

Which type of leg primarily is designed to capture and hold prey?
a. natatorial
b. saltatorial
c. raptorial
d. locatorial

In which order of insects to we find front wings that are half membranous and half leathery
a. Thysanura (bristletails and silverfish)
b. Orthroptera (grasshoppers and relatives)
c. Mantodea (praying mantids)
d. Hemiptera (true bugs)

What is the main function of the insect abdomen?
a. sensory
b. storage and reproduction
c. locomotion
d. feeding

The protein found in the insect exoskeleton that has elastic properties and allows for flexibility is
a. resilin
b. chitin
c. epicuticulin
d. flexin

What type of metamorphosis is found in the Thysanura (bristletails and silverfish)?
a. complete metamorphosis
b. incomplete metamorphosis
c. no metamorphosis
d. brachypterous metamorphosis

What stages are found in insects with gradual or incomplete (paurometabolous) metamorphosis?
a. egg, nymph, adult
b. egg, nymph, larva, adult
c. egg, larva, pupa, adult
d. egg, nymph, pupa, adult

The scientific name of a species of composed of the
a. genus and species names
b. family and genus names
c. family and species names
d. latinized form of the class and order

For this section, fill in the blanks of the chart

Order	**Type of mouthparts**	**Type of metamorphosis**
	chewing	No metamorphosis
Lice	Sucking or chewing	
	Siphoning in adults Chewing in immatures	

Beetles		Complete metamorphosis
Homoptera (aphids, scales, whiteflies, etc)		
Termites	Chewing	
fleas	Chewing in immatures Piercing/sucking in adults	
True flies		Complete metamorphosis