### C:\Users\Dr.Abdelwahab\Desktop\Logo Entomology.jpgBenha University, Faculty of Science Entomology Department

### Final Examination, 1st Semester, 2015 Time allowed 1 hour

### General Entomology (111E) 48 Marks

### Date: Thursday, 11/1/2018

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**Model Answer**

### Question 1: Put the sign or x in front of each statement in the column (18 Marks)

|  |  |
| --- | --- |
|  | **THE STATMENT** |
| x | **Moths and butterflies belong to order Hymenoptera.** |
| x | **Spiders and scorpions are close relatives of insects in phylum Hexapoda.** |
| x | **Insects are divided up into 38 orders, or groups.** |
|  | **The largest specimens of modern insects are found in the tropics.** |
| x | **Some insects can live for 25 years.** |
| x | **Freedom of insect's movement is ensured by chitin in the exoskeleton.** |
|  | **In hemimetabolous insects, wings may be completely absent during the first instar.** |
| x | **The majority of insects live in air.** |
|  | **Antennae can be used as tactile organs.** |
| x | **In grasshoppers and cricket's eardrum is located on the tibiae of the hind legs.** |
| x | **If all pairs of legs are equally developed, such legs are called jumping legs.** |
| x | **All adult higher insects have wings.** |
|  | **Many insects eggs develop without fertilization by sperm** |
|  | **Allantoin was extracted from maggots and used as antibiotic.** |
|  | **Larvae of the midge Chironomus contain hemoglobin.** |
| x | **Wings of houseflies move as a unit together during flight.** |
|  | **Insects are the most diverse of all groups of organisms.** |
| x | **Apterygota are more advanced insects than Pterygota.** |

**Question 2: Write the scientific term for each of the following: (15 Marks)**

|  |  |  |
| --- | --- | --- |
| S.T. | | **The Statements** |
| **Apterygota** | **Subclass of primitive and wingless insects.** | |
| **Coleoptera** | **The most diverse of all insect orders.** | |
| stick insects or walking sticks | **The longest of all insects.** | |
| **Diptera** | **Insects having two wings** | |
| **Tracheal system** | **The basic respiratory system in insects.** | |
| Johnston's organs | **Sensory structure on the 2nd segment of mosquito antennae.** | |
| **Naiads** | **Immatures of aquatic insects.** | |
| **Insecta** | **Class of organisms have six legs** | |
| **Silk** | **The strongest of all-natural fibers.** | |
| **Taenedia** | **Spiral Chitin lining trachea.** | |

**Question** **3: What is the difference between (6 Marks)**

1. **Maggot therapy and apitherapy.**

Maggot therapy: Certain fly larvae used for cleaning deep wounds.

Apitherapy: Using honey bees (or their products) for medicinal purposes.

1. **Shellac and Cochineal.**

Shellac: A product of a scale insect, was widely used as a varnish (protective coating) for floors, furniture, draperies, photographs, playing cards, and dried flower arrangements.

Cochineal:A pigment extracted from a scale insect was highly valued for the intensity and permanence of its color, it is very expensive because of its scarcity. It is still used as a coloring agent in foods, beverages, cosmetics (especially lipsticks), and art products.

1. **Propolis and Allantoin.**

[Propolis](http://en.wikipedia.org/wiki/Propolis) (or bee glue) is created from resins, balsams and [tree saps](http://en.wikipedia.org/wiki/Sap_(plant)). Honey bees which nest in tree cavities use propolis to seal cracks in the hive. Some [honey bees](http://en.wikipedia.org/wiki/Apis_florea) use propolis to defend against ants by coating the branch from which their nest is suspended to create a sticky moat. Propolis is consumed as a health supplement in various ways and also used in some cosmetics.

**Allantoin:** A chemical secretion **extracted** from these maggots and used as antibiotic until penicillin and other antibiotics became commercially available in the 1940's.

**Question** **4: Give reason for the followings (9 Marks)**

1. **Insect must molt periodically.**

Because it has a hard exoskeleton which prevent its growth

1. **Insects play a vital role in the biogeochemical cycling of nutrients.**

As consumers, scavengers, and decomposers, insects play a vital role in the biogeochemical cycling of nutrients.  Insects help aerate the soil, improve its retention of rainwater, and enhance its fertility. Flies and dung beetles prevent the build-up of manure from large animals and speed up its decomposition by fungi and bacteria.

1. **Some insect species mimic other species.**

To escape from enemies

1. **Mosquito larvae spend a long time on water surface.**

For breathing air with the siphon

1. **Some insects can travel great distances or remain airborne for long periods of time.**

Due to high efficiency of using energy during flight

1. **Plant galls made by insects may have economic value.**

Because tannic acid (a chemical compound widely used in the leather industry for tanning and dying and in the manufacture of some inks) can be obtained from these galls