	TANTAUNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF PHYSICS			
	EXAMINATION LEVEL TWO STUDENTS of special Zoology			
	COURSE TITLE:	Chordates		COURSE CODE: ZO2202
DATE:	19-5- 2018	TERM:SECONDTERM	TOTAL ASSESSMENT MARKS : 75	TIME ALLOWED: 2HOURS

Part (A): (75 Marks): الامتحان صفحتان

Question (1): With a full labeled diagram **show** the structure of the digestive system and **state** the mechanism of digestion in Ascidia. **(15 Marks)**

Question (2):With drawing only show:(45 Marks)

1. Mechanism of respiration in Tilapia
2. Structure of the heart in petromyzon
3. Skeletal structures in amphioxus

Question (3): **Draw** a full labeled diagram of the circulatory system in amphioxus. **(15 Marks)**

Part (B): (75 Marks):

Question (4): (20 Marks)

A. With a full labeled diagram, illustrate the structure of:

1. Heart of lizard with its main veins
2. Respiratory system of lizard
3. Heart of pigeon with its main vessels

B. How is the respiratory system of pigeon adapted for fly?

Question (5): What is/are the function/s of the following: (8 Marks)

1. Extra-embryonic membranes in amniotes
2. Cloaca in lizard and pigeon
3. The jugular anastomosis in venous system of pigeon

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4. Cerebellum of nervous system of pigeon

Question (6): Fill in the blanks with appropriate words(47 Marks)

1. In reptilia, the temporal region of skull of ..... group contains .....While in ....., it possesss ..... and in ..... , it has ..... Moreover, there are ..... in ..... group.

2. Number of vertebrae with their respectively regions of vertebral column of lizard are ....., ..., and ..... while those of pigeon are as follows ....., ..., ..., ... and ..... The latter consists of ..... free vertebrae and ..... fused vertebrae.

3. The dorsal aorta in pigeon gives off ..... to stomach, ...to intestine, ... to the anterior lobes of each kidney, ... to the legs, ... to the pelvis, ...to the rectum and cloaca and ..... to the tail.

4. Each of the precava in rat is formed of 5 vessels as follows: ....., ..., ..., ... and ....., while the systemic arch gives off ....., ... and ..... The former gives off ..... and ..... while the latter gives off ..... and .....

5. The skin of mammals is covered either with .....or ..... and possesses glands that are ....., ... and .....

6. All mammals are ..... reproduction, except theprototherians that are .....

7. The subclass theria in mammals includes ..... and .....

With best wishes

EXAMINERS	**Prof. AbeerAlm-Eldeen**	**Prof. Fathy Atta**

	Tanta University Faculty Of Science Zoology Department Entomology Branch			
	Exam For Sophomore Students of Chemistry / Entomology			
	Course title:	Insect Ecology (الأسئلة فى صفحتين)		Course code: EN 2244
Date: 21st May	June 2018	Term: Second	Total marks: 150	Time allowed: 2 hours

Answer the following questions:

1. Fill in the blanks with the appropriate words (20 marks, 2 each):

1.1. For any ecological problem, the solution will be by the end of the 4-step process: description, understanding, ... and .....
1.2. Much of the deviation among populations isolated on islands appears to be due to.....
1.3. Biomes are recognized with differences in.....of different parts of the world.
1.4. .....is the transference of adults of a new generation from one breeding habitat to others.
1.5. Polyphenism of the European butterfly, *A. levana*, is known to be due to different...
1.6. 1.6. Conservation is the study of Earth's biodiversity with the aim of.....
1.7. *Deserts* are found in areas that experience extreme.....
1.8. The number of descendants of an individual depends on the interaction between .....
1.9. There are about 1500 *Drosophila* spp. worldwide, but 500 of these are found on .....

2. State if the following statements are true or false with correction (20 marks, 2 each):

2.1. Insects, as poikilothermic animals, maintain a constant body temperature irrespective of the temperature of the surroundings.
2.2. Circadian rhythms are endogenous but are regulated by environmental factors.
2.3. Juvenile hormone (JH) plays a major part in the initiation of migratory behaviour.
2.4. The frequency of melanic form in the peppered moth fell to near pre-industrial levels due to the intensive use of charcoal.
2.5. Free-running rhythm occurs when the environment influences the activity.
2.6. By affecting an insect's ability to fly, the temperature may have a marked effect on a species' dispersal.
2.7. Typically, insects produce two or more polyhydroxyls to increase toxicity.
2.8. Typical Fresh-water insects are restricted to waters of low ionic content.
2.9. The indirect effect is observed by the wind that may affect flight activity.
2.10. Wheather plays a major role in limiting population density through a variety of direct and indirect effects (e.g. the fall webworm).

3. Choose the correct answer for each statement (16 marks, 2 each):

3.1. Cold hardiness refers to an insect's ability to adapt to and survive (low - high – moderate) temperature.
3.2. Molecular studies using *Drosophila* mutants have identified 10 genes involved in (seasonal – circadian – annual) rhythms.
3.3. The environmental stimuli that induce (diapause – migration – cold hardness) must exert their influence at an earlier stage in development.
3.4. In the second category of migration, Johnson included species whose migration is (one – two) part.
3.5. (Monarch butterflies – locusts – Odonata) migrates to California or Mexico to overwinter.
3.6. Future depends on ecological understanding and our ability to produce (outcomes – insects - forests) under different scenarios.
3.7. (Biodiversity – conservation) is the degree of variation of life forms within a given ecosystem.
3.8. (Chaparra – Grassland – temperate forest) occurs in Mediterranean-type climates in Europe, California and northwest Mexico, and in a few small areas in Australia, Chile and South Africa.

4. Answer the following items (20 marks, 10 each)

4.1. Write short notes on the geographic modes of speciation in nature.

4.2. Define Ecotype giving an example of the recent publications that showed how ecotypes match to their environments.

5. Choose the correct answer (36 marks, 2 each)

5.1. Similar adaptations are often shared by organisms inhabiting..... habitat
(a) the most important (b)relatively small (c) a common

5.2. The larvae of house fly are considered from the most important .....
(a) decomposers (b) herbivores (c) parasitoids

5.3. Insects that feed on fluids are faced with the problem of .....
(a) excessive intake of water (b) predation (c) Competition

5.4. About ..... of the water evaporated through the solar energy comes from oceans,
(a) 85% (b)25% (c)90 %

5.5. The majority of insects dispose of waste nitrogen in the form of .....
(a) liquids (b) uric acids (c) crystals

5.6. In tenebrionid beetles, the method of obtaining water is the result of a combination of ...
(a) cannibalism and predation (b) parasitoidism and parastism (c) adaptation

5.7. .....is a form of intra-specific predation.
(a) cannibalism b) mutualism (c) parasitoidism

5.8. In the nitrogen cycle, in ..... process any nitrates, or nitrites in the soil may be broken down to N_2 by bacteria under anaerobic conditions.
(a) ammonificaton (b) nitrification (c) denitrification

5.9. Some orders are nearly entirely ..... like the Odonata, the Mantodea and the Neuroptera.
(a) preys (b) parasites (c) predatory

5.10. In .....The females produce females progeny without fertilization.
(a) Parthenogensis (b) Paedogenesis (c) Homogenises

5.11. When a population exceeds the carrying capacity of the environment and deaths result from a scarcity of resources.....occurs
(a) Emigration b) Overshoot (c) immigration

5.12. The position of any organism in the food chain designates its .....
(a) carrying capacity b) food web (c) trophic level

6. Write short notes on (38 marks):

6.1. The survivorship curve patterns - assimilation – ammonification - carrying capacity (20 marks).

6.2. The main function of the filter-chamber in Homoptera (4 marks).

6.3. Special adaptations of predatory insects. Give an example (14 marks).

Examiner: Prof Dr Ensaf El-Gayar & Dr Wesam Meshrif

Tanta University
Faculty of Science
Department of Zoology

EXAMINATION FOR JUNIORS (2nd LEVEL) STUDENTS, SPECIAL ZOOLOGY

Course title: Medically important animals and human health	*Student No.: 45*	*Course code: ZO2216*
Date:28th May, 2018	*Total assessment marks: 100*	*Time allowed: 2 HOURS*

Examiners: Prof. Mohamed Basiony and Prof. Soha Gomaa

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Question 1(30 marks)

Give the difference between the followings:

1. Sting and bites in insects.
2. Toxicity of ants and bees.
3. Poisonous and non-poisonous snakes

Question 2(40 marks)

A- Fill in the blank with appropriate word(s)?

1. The main types of venom are 1—, 2—, 3—, 4—.
2. — venom contains peptides that destroy the protein in the muscle fibers resulting in — .
3. Poison is — or — toxin, while venom is — toxin.
4. Animal venoms, such that of snakes are complex mixtures of bioactive agents which may be — or —.
5. The main biological functions of the animal venoms are 1—, 2—, 3—, 4—.
6. Rattle snake produces toxins in — then injects toxins through hollow —.
7. Snake venom contains two cytolytic proteins called — and — which destroy cancer cells selectively.
8. Neurotoxins components of venom can be categorized physiologically into — or —.
9. — protein is a venom cytotoxin that can induce apoptosis in cancer cells
10. Contortrostatin (CN) is — rather than —.
11. Haemotoxins components of venom can be categorized physiologically into1—, 2—, 3—, 4—.
12. Presynaptic neurotoxins directly target sites on —, whereas — neurotoxins target AChR to prevent its binding to ACh.
13. — is a drug made from snake venom that show a promise in breaking down of blood clots and decreasing levels of fibrinogen.
14. — is presynaptic neurotoxin which has toxic effect on the nerve cell, but — is a postsynaptic neurotoxin which has toxic effect on the nerve cell.
15. — is a venom procoagulant that converts prothrombin to thrombin leading to a depletion of available fibrinogen.
16. Phospholipases A2 is one of venom anticoagulants which bind to — and — to produce anticoagulation effect without concurrent fibrinolysis.
17. Venom myotoxins induce — that involve disruption of the plasma membrane and disorganization of the myofibrils resulting in —.
18. — is the maintaining of oral tissues and structures in healthy state.
19. Phospholipase contributes in — and releases — into blood plasma.
20. Contortrostatin belongs to a class of proteins known as — that disrupt the function of — proteins.

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Question 3(30 marks)

A-Choose the correct answer? (10 marks)

1. Depolarization at the axolemma of the nerve opens calcium channels result in the release of
   a- Acetylcholine (ACh) b- Sodium (Na^+) c-Potassium (K^+) ions
2. .....is an inhaled or ingested toxin.
   a- Poison b- Venom
3. Rattle snake is a.....animal species
   a- Venomous b- poisonous c- harmless
4. .....causes veins compression very tightly up against the skin, resulting in loss of blood circulation
   a- Cytotoxic venom b- Haemotoxic venom c- Myotoxic venom d- Neurotoxic venom
5. .....degrades Glycosaminoglycans (GAGS) and causes other enzymes in the venom to be absorbed more rapidly into human tissues
   a- Cholinesterase b- L-amino acid oxidase c- Hyaluronidase d- Phosphodiesterase
6. Taipoxin is a.....
   a- Postsynaptic neurotoxic venom component b- Presynaptic neurotoxic venom component
7. Taipan toxin1 is a.....
   a- Postsynaptic neurotoxic venom component b- Presynaptic neurotoxic venom component
8. Oscutarin is a venomous component that has.....feature.
   a- Anticoagulants b- Platelet toxins c- Procoagulants d- Plasminogen inhibitor
9. Phospholipases A2 (PLA2) is a venomous component that has.....feature.
   a- Anticoagulants b- Procoagulants c- Plasminogen inhibitor
10. ..... is responsible for the negative cardiac reactions in victims and a rapid drop in blood pressure
    a- Cholinesterase b- L-amino acid oxidase c- Hyaluronidase d- Phosphodiesterase

B-Decide whether the following statements are true or false with correction? (10 marks)

1. Anesthesia found to be very effective in deactivating the nematocysts of venomous cnidarians.
2. Immersing the stung limb in vinegar is an effective first aid for venomous fish.
3. Venomous cnidarians carry venom-gland in their organs for self-defense.
4. Metastasis is temporary cessation of the vital functions, as by freezing an organism.
5. Toxicant is a biological product used in the treatment of venomous bites or stings.

C-Discuss the following in details? (10 marks)

1. Anti-stroke properties of venom.
2. Anti-cancer properties of venom.

Best wishes from

The Examiners

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SOPHOMOR (SECOND YEAR) STUDENTS OF ENTOMOLOGY / CHEMISTRY			
	COURSE TITLE	INSECT INTERRELATIONSHIPS WITH OTHER LIVING ORGANISMS		COURSE CODE: EN 2242
DATE:	JUNE, 2018	TERM: SECOND	TOTAL ASSESSMENT MARKS:150	TIME ALLOWED: 2 HOURS

PLEASE NOTE THE EXAM IN TWO(2) PAGES

ANSWER THE FOLLOWING QUESTIONS:

The First Question..... (15 Marks, 3 Each)

Give Short Notes On The Following Items:

1- Mechanisms used by Entomophagous plants in trapping insects (give 3 examples)
2- The main differences between bee-pollinated and moth-pollinated flowers.
3- The relation between yucca moth and yucca plant.
4- Different levels of insect parental care.
5- Symbiosis between ants and aphids.

The Second Question..... (15 Marks, 3 Each)

Define The Following Scientific Terms:

1- Commensalism
2- Mutualism
3- Entomophilous plants
4- Oligophagous insects
5- Cannibalism

The Third Question..... (20 Marks, 1 for Each Blank)

Fill In the Blanks with Appropriate Words

1) Female mealy bugs and scale insects protect their eggs by.....,....., ... and.....
2) Female water bugs lay eggs on....., then.....
3) The 4 main characters of eusocial insects are....., ..., ... and .....
4) Thorns of acacia plants attacked by.....which make a hole in thorns for....., feeding on....., collect.....produced at the leaf petioles and protect acacia against.....
5) A digger wasp female builds ..... in the ground and provides the eggs with ..... which remains alive but ..... with a substance injected together with the egg.
6) The swallow-tail caterpillars remain by day ..... . Every evening, almost exactly half an hour after sunset, they ..... until about 3.30 the following morning.

The Fourth Question..... (25 Marks, 5 Each)

Discuss In Details the Following:

1- Myiasis and its different kinds
2- Intermittent parasites
3- How insects facilitate the breakdown of organic materials?
4- Defoliaters
5- Difference between mechanical and biological vectors

The Fifth Question..... (38 Marks)

A. In view of your study, shortly discuss with examples, the entomopathogenic bacteria that were developed as a microbial insecticide..... (15 Marks)

B. Summarize the main relationships between insects and Rickettsia ..... (13 Marks)

C. In only one sentence, define each of the following terms..... (10 Marks, 2 Each)

a) Yellow Fever b) Red rot disease of sugar cane. c) Fungus-gardens

d) The muscardine disease e) Sacbrood of Honeybees

The Fourth Question..... (37 Marks)

A. In view of your study, discuss in details the microsporidiosis in insects.....(15 Marks)

B. Enumerate the effect of *Blastocrithidia triatomae*cause to its triatomine host..... (10 Marks)

C. Fill in the blanks with appropriate words..... (12 Marks, 2 for each blank)

1) The majority of insect flagellates occurs in ..... and .....
2) The blocking phenomenon of the sand fly vector (*Phlebotomas spp.*) digestive tract occurs during ..... infection
3) *Malpighamoeba mellificae* of honey bees and *Malameba locustae* of grasshoppers and locusts infect the ..... of their hosts.
4) *Tetrahymena dimorphalt* is a pathogen of .....
5) ..... is the causal agent of ciliatosis in tree hole-breeding mosquito *Ades sierrensis*

GOOD LUCK

EXAMINERS	PROF. IBRAHIM BAKR HELAL	PROF. SAID NOR EL-DEEN
	DR. SAMAR ELKHOLY	DR. YEHIA ELNAGGAR

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY		
	FINAL EXAMINATION FOR (SECOND YEAR) STUDENTS CH-ZOOLOGY		
	COURSE TITLE:	Entomology	COURSE CODE: ZO2244
ATE:	19-5-2018	TOTAL ASSESSMENT MARKS: 150 MARKS	TIME ALLOWED: 2 HOURS

Section A (50 marks) Exam. In 3 pages

1-Discuss the following items: (12 marks, 4 each)

1. Orientation of the head
2. Wing coupling mechanisms
3. Structure and function of insect integument

2-Compare and draw fully labeled drawing between: (12 marks, 4 each)

1- Chewing and chewing-lapping mouth parts
2- Piercing sucking mouthpart of plant feeders and blood sucking insects
3- Membranous and scaly wings

3-Mention the modification, a representative insect and draw fully labeled drawing of the following: (6 marks, 2 each)

1- Jumping leg. 2- Collecting leg. 3- Clavate antennae.

Complete the following statements: (20 marks, 2 each)

1- In insect head, suture means……..while sulcus means……
2- …….. have plumose antennae, while……have pilose antennae.
3- ……..have hemielytron wing
4- Halters present in…….. . They help in……
5- The abdomen of gravid female termites is……..
6- Cerci usually function as……
7- Female reproductive system of honeybee workers modified into……..
8- ……have digging legs that help in……

9- Insect wings have no.....but their movements are due to.....

10- Insect abdomen consists of three regions: ..... , ... and.....

Part two: (70 marks)

1- Choose the correct answer (15 marks,2.5 marks each).

1-Honey stomach belongs to the (fore-mid-hind) gut of honey bee worker.

2-Most of digestion take place in (gizzard-oesophagus-midgut) of insects.

3-Filter chamber is modification in (rectum-midgut-heart) of Homoptera insect.

4-Royal jelly is secreted by (hypopharyngeal gland-salivary gland-mandibular gland) of worker honey bee.

5-uric acid execrate through Malpghain tubules by (simple diffusion-active transport-passive transport).

6- Circulatory system of insect is (open dorsal- open ventral-closed dorsal).

2-Answer the following (55 marks).

1- Mention the structure, function and modification of fore and midgut insect. (15 marks)
2- Discuss the respiration in the aquatic insects. (10 marks)
3- Write a short note on the function of the insect haemolymph. (10marks)
4- Discuss the type of ovary and reproduction of insects. (10 marks)
5- Discus the mechanism of excretion through Malpighian tubules. (10 marks)

Part three (30 marks)

1-Fill in the blanks with the appropriate words(Total: marks 10, mark 1 each) :

1- .... .is a vector of malaria,while ....is avector of Yellow fever.

2- The males mosquitoes have .....antennae, while females have.....antennae.

3- The mouth parts of Hymenoptera are..... .....,but in bee they are the .....type.

4- The front wing of Coleoptera is.....while the first pair is .....in Blattodea.

	TANTA UNIVERSITY - FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY		
	FINAL EXAMINATION FOR SECOND LEVEL STUDENTS OF ZOOLOGY		
COURSE TITLE:	COMMUNITY ECOLOGY		COURSE CODE: ZO 2212
DATE: 26. MAY. 2018	SEMESTER: 2nd	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions

The first question: (40 marks)

A. Give an account on species diversity measure

B. Two communities **A** and **B** each has 12 species. The number of individuals of each was tabulated in the following table:

	Sp 1	Sp 2	Sp 3	Sp4	Sp 5	Sp 6	Sp 7	Sp 8	Sp 9	Sp10	Sp 11	Sp12
Community A	12	13	11	14	12	13	12	11	12	9	16	14
Community B	2	4	25	36	18	10	11	1	6	40	6	5

Use the suitable sign (>, = , <) between each two parameters.

1. Qualitative similarity of community **A** and community **B** ..... Quantitative similarity of community **A** and community **B.**
2. Species diversity of community **A** ..... species diversity of community **B.**
3. Concentration of dominance of community **B** ..... that of community **A.**

The second question: (30 marks)

Discuss the following statements:

1. Functional aspects of species diversity.
2. The number of sequence links in biotic community component is limited.
3. Autotrophs in land ecosystem contribute more to the structural matrix than do autotrophs in water. However, water ecosystems are more productive.

The third question: (30 marks)

Give an account on the following:

1. what are the main component of similarity and species diversity equations.
2. If the concentration of dominance in an community was 0.36 can you predict the species diversity value.
3. Two communities A and B, each has 15 species and the total number of individuals 1005 and 777 and equitability values 1 and 0.5 respectively. calculate the following:
   a. Species diversity of each community
   b. Concentration of dominance.
   c. Number of individuals for each species in Community A.

Best Wishes

Examiners	Prof. Dr. Abdel Naieem I. Al-Assiuty	Prof. Dr. Mohamed A. Khalil