



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF ZOOLOGY

EXAMINATION FOR SOPHOMORE (SECOND YEAR) ZOOLOGY DIVISION

COURSE TITLE:	Cell Biology and Genetics	COURSE CODE:ZO 2101
DATE 23/1	JANUARY, 2013	TERM: FIRST
TOTAL ASSESSMENT MARKS:150		TIME ALLOWED: 2 HOURS

Answer the following questions:

I) First Part: (75 Marks)

1-A- Define, identify or otherwise explain (10 only)

- Genotype
- Albinism
- Autosome
- Codon
- DNA ligase
- Ontogeny
- Serology
- Down syndrome
- Dominant
- Gene pool
- Translocation
- Transfer RNA

B- Explain in details how to produce an animal which is an exact genetical copy of its parent.

2-A- A brown-eyed man with blood type O, married a blue-eyed woman with blood type AB; if the man's mother was blue-eyed, what are the chances of any of their children being:

- a- blue-eyed
- c- of blood type O
- e- of blood type B
- b- Brown-eyed
- d- of blood type A
- f- of blood type AB

Show your work.

B- In humans, the gene for normal sight is dominant to the gene for color-blind. If a color-blind man was married to a homozygous normal sighted woman, what would be the chance of any of their children being color-blind?

Show your work.

II) Second Part: (37.5 Marks)

1- Identify only four from the following:

- a) Cell injury
- c) Atrophy
- e) Local cell signaling.
- b) Contrast
- d) Metaplasia

2- Write short notes and drawing as possible in only two of the following:

- a) Different cell responses
- b) Cell fractionation to separate the major organelles of the cells.
- c) Overview of cell signaling.

Q2: Write a short essay on the base excision repair mechanism using illustrated drawings when needed.

Q3

- 1) The sequence of a piece of DNA reads as 5'- GAATTCC - 3', what is the complementary DNA sequence to this?
A) 5' - GGAAUUC - 3'
B) 5' - GCAAUTC - 3'
C) 5' - GGAATTC - 3'
D) 3' - CTTAAGG - 5'
- 2) 6-4 photoproduct is:
A) A DNA damage legend
B) Splicing enzyme
C) Replication error
D) Transcription factor
- 3) The process by which DNA transfers its information to RNA is called:
A) transmutation B) transmittal C) translation D) transcription
- 4) The part of RNA polymerase responsible for recognizing the promoter is the:
A) alpha subunit
B) rho protein
C) beta subunit
D) sigma subunit
- 5) The TATA box is located in?
A) transcription termination sites
B) the promoter
C) reverse transcriptase
D) operator binding sites

EXAMINERS	Prof. Ahmad Massoud	Prof. Ehab Tousson
	Prof. Elsayed Salim	

Good Luck

III) Third Part:

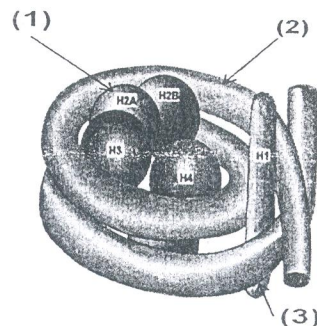
(37.5 Marks)

Q1-a: Identify (two only) of the following briefly:

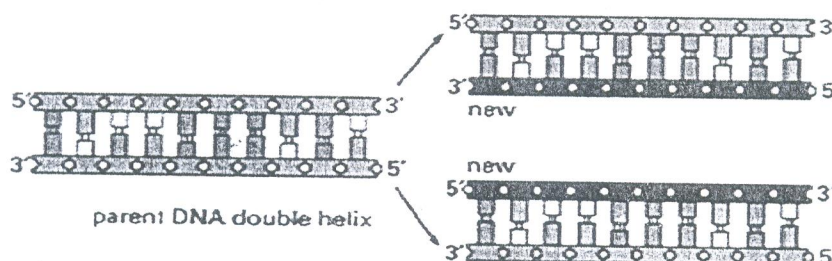
- 1- Karyotyping
- 2- Chromosome and chromatin
- 3- Codon and anticodon

Q1-b: Answer in short words questions 1-4 about the following structure:


- 1- What does the drawing represent? add details (1), (2) and (3)
- 2- What is the function of the following structure?
- 3- How long is it?
- 4- Where it is usually found within the cells?



Q1-c: The following structure represents DNA replication:



- 1- Why is it called "Semiconservative replication"?
- 2- Write down the main enzymes and proteins found in the pre-replication complex.

 TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY				
EXAMINATION FOR FRESHMEN (SECOND YEAR CREDIT HOURS) STUDENTS				
COURSE TITLE:	Cell Biology & Genetics			COURSE CODE ZO/ 2101
DATE	17-1-2013	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

I. Cell Biology

I. Answer the following questions:

(75 Marks)

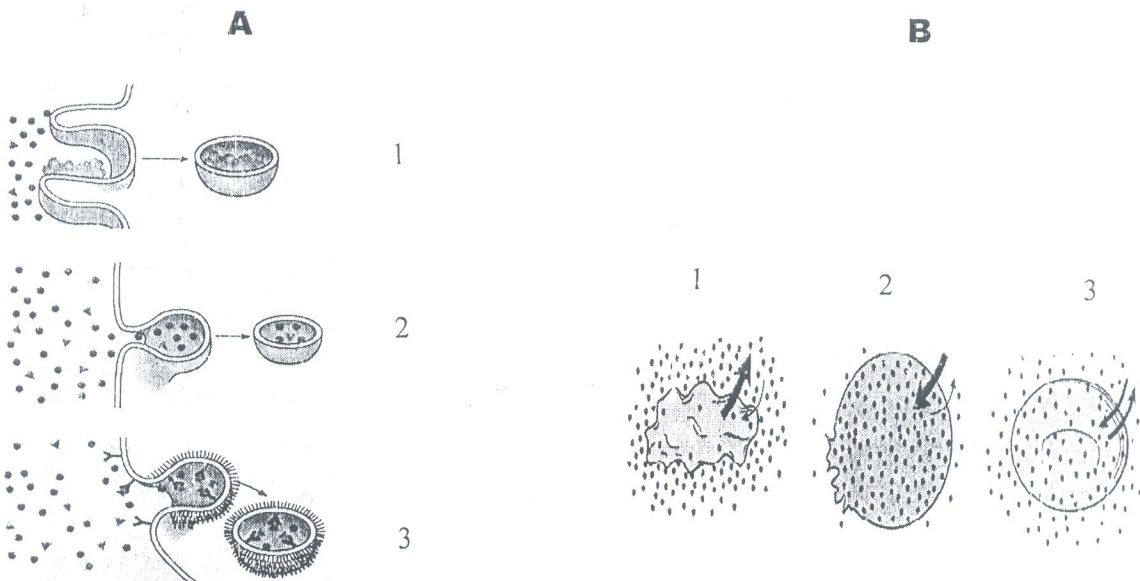
A. Multiple-Choice Quiz:

1. If a cell is placed in a beaker of distilled water, which of these will be true?
 - a. The cell will shrink.
 - b. There will be a net movement of water into the cell.
 - c. It is impossible for a water molecule to leave the cell.
 - d. Most of the dissolved substances will leave the cell.
2. Which of the following describes what will happen to animal cells placed in a hypertonic environment?
 - a. Nothing will happen
 - b. They will shrink due to water loss
 - c. The cell membranes will fall apart
 - d. They will swell and possible burst due to water gain
3. What of the following describes what will happen to animal cells placed in a hypotonic environment?
 - a. Nothing will happen
 - b. They will shrink due to water loss
 - c. The cell membranes will fall apart
 - d. They will swell and possible burst due to water gain
4. What is the name given to membranes that only allow certain materials to pass through them?
 - a. Diffusion
 - b. Osmosis
 - c. Impermeable
 - d. Selectively permeable
5. A secondary lysosome
 - a. Contains a mixture of hydrolytic enzymes and phagocytosed material
 - b. May become a residual body
 - c. Is an organelle formed by fusion of primary lysosomes and phagosomes
 - d. All of the above
 - e. None of the above
6. Which of the following are mechanisms of exocytosis:
 - a. Pinocytosis
 - b. Phagocytosis
 - c. Regulated secretion
 - d. Receptor mediated endocytosis
7. All of the following are functions of the cell membrane except:
 - a. Maintaining the structural integrity of the cell
 - b. Absolute permeability
 - c. Regulating cell-cell interactions
 - d. Recognizing, via receptors, antigens and foreign cells as well as altered cells
8. "Tight junctions, desmosomes and gap junctions"
 - a. Transport
 - b. Enzymatic Activity
 - c. Signal transduction
 - d. Intercellular joining
 - e. Cell-cell recognition
9. Lysosomes function in the destruction and recycling of old organelles, True or False
10. All of the following are the junctions in the lateral epithelial cells except:
 - a. Tight junctions
 - b. Desmosomes
 - c. Cilia
 - d. Gap junctions

B) Complete:

1. The process of a cell engulfing a solid object is.....
2. Autophagosome is.....
3. Cells are connected to neighboring cells via.....,.....,.....while at the basal surface of epithelium by.....and at the apical surface of epithelium by.....
4. Plasmolysis is..... while Cytolysis is.....
5. The ingestion of large solid particles, such as bacteria and cell debris is called.....
6. The lysosomes contain enzymes, and they are membrane-bound vesicles that arise from....
7. Early endosome is..... but the late edosome is.....
8. The peroxisomes are synthesized by cytoplasmicand not synthesized in the..... their main function iscell by eliminatingin the presence of.....enzyme
9. Functions of membrane proteins are.....
10. The process of water moving across a membrane from an area of high water concentration to low water concentration is called.....

C) Identify and write short comment:



II. Answer the following questions:

(37.5 Marks)

A. Identify 4 only of the following:

- | | | |
|-------------------|---------------|----------------|
| 1. Cell signaling | 2. Contrast | 3. Apoptosis |
| 4. Hypertrophy | 5. Resolution | 6. Hyperplasia |

B. Write short notes and drawings as possible in two only of the following:

1. The morphology of apoptosis
2. Causes of cell injury
3. Cell fractionation to separate the major organelles of the cells

II. Genetics

III. Answer the following questions:

(37.5 Marks)

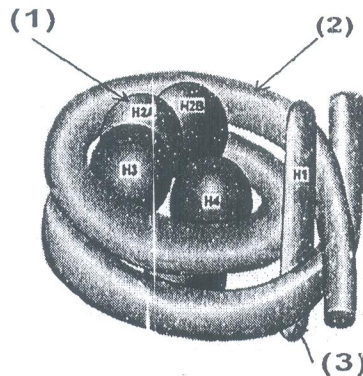
A. Identify & complete : (16 Marks)

1. Identify the following briefly

- a- Primase enzyme
- b- snRNPs

2. What is the following structure?

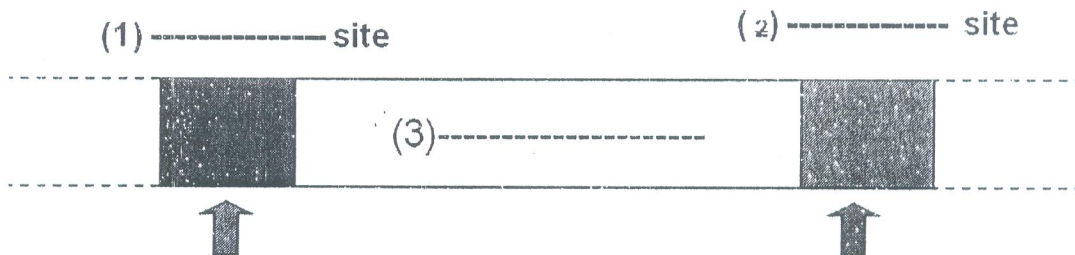
Write the details (1), (2) and (3) to the following drawing:



B. Answer (21.5 Marks)

1- What is the following structure? Is it prokaryotic or eukaryotic?

- Complete (1), (2) and (3)



- 2- Write two main differences between RNA polymerase and DNA polymerase?
- 3- Write about polyadenylation of premature RNA using illustrated drawings when needed.
- 4- Describe how polymerase enzyme has a characteristic of self repair?
- 5- Write about NER in prokaryotes using illustrated drawings when needed.

EXAMINERS	Prof. Nabila I. El – Desouki Prof. Ehab Tousson Prof. Elsayed Salim
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FACULTY OF SCIENCE
DEPARTMENT OF ZOOLOGY

EXAMINATION FOR SOPHOMORE (SECOND YEAR) BIOPHYSICS DIVISION

COURSE TITLE:	Cell Biology and Genetics	COURSE CODE:ZO 2101
DATE 15/1	JANUARY, 2013	TERM: FIRST
TOTAL ASSESSMENT MARKS:150		TIME ALLOWED: 2 HOURS

Answer the following questions:

I) First Part: (37.5 Marks)

1- A) Define, identify or otherwise explain (10 only)

- Antibody
- Carrier
- Gene
- Karyotype
- Transfer RNA
- Turner syndrome
- Colonisation
- Hidden trait
- Translocation
- Allele
- Codon
- Chiasma

B) In humans, the gene for brown eye color is dominated to the gene for blue eye color. A blue-eyed man marries a brown-eyed woman. If each had a blue-eyed mother, what are the chances of their first child being blue-eyed? Show your work.

A-8% B-25% C-50% D-75% E-100%

II) Second Part: (37.5 Marks)

- 1- a) List the different types of RNA and the genomic DNA in a cell and describe their functions.
b) List the difference between RNA and DNA molecules.
c) Based on your reading, describe how studying genetics can advance the biomedical sciences and its benefit of the human health.
- 2- a) Describe an experiment in which you can proof that DNA is the genetic material.
b) List the differences between the replication and transcription processes?
c) In your own experience, what a specific area in genetics that needs more research for a better understanding.

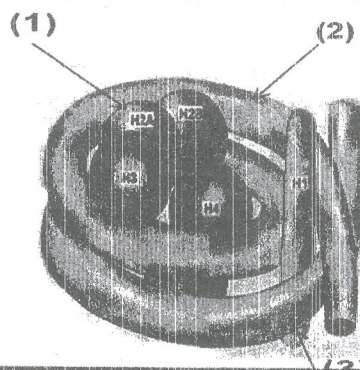
III) Third Part: (A) 4 IDENTIFY AND COMPLETE (3/5 Marks)

1- Identify the following briefly:

- a- Primase enzyme
- b- snRNPs

2- What is the following structure?

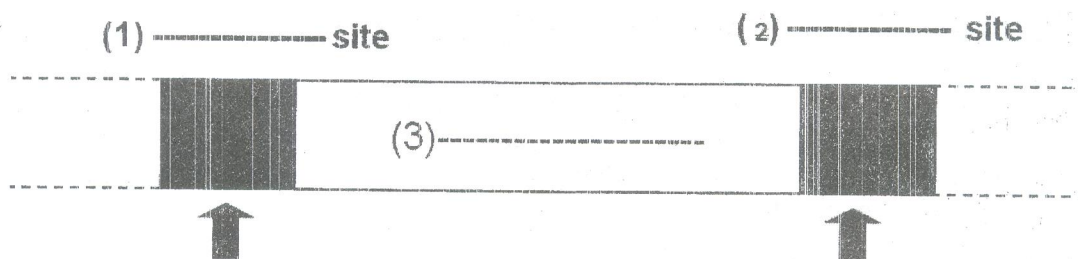
Write the details (1), (2) and (3) to the following drawing:



III) Third Part: B Answer

1- What is the following structure? Is it prokaryotic or eukaryotic?

- Complete (1), (2) and (3)



- 2- Write two main differences between RNA polymerase and DNA polymerase?
- 3- Write about polyadenylation of premature RNA using illustrated drawings when needed.
- 4- Describe how polymerase enzyme has a characteristic of self repair?
- 5- Write about NER in prokaryotes using illustrated drawings when needed.

IV) Fourth Part: (3/5 Marks)

1) Complete:

- a- Passive transport is subdivided into,..... .
- b- Pinocytosis is while phagocytosis is
- c- Gated channels are subdivided into,..... .
- d-is a function of membrane proteins.
- e- it means release of cell products into extracellular compartments.

2) Write short notes and drawing as possible in the following:

- a- Ultrastructure of plasma membrane .
- b- Sodium –potassium pump.
- c- Types of lysosomes.

EXAMINERS	PROF. AHMAD MASSOUD	PROF. MOHAMED LABEB
	PROF. ELSAYED SALIM	DR. EZAR HAFEZ

Good Luck



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF ZOOLOGY

EXAMINATION FOR JUNIORS (2ND YEAR) STUDENTS OF SPECIAL ZOOLOGY

COURSE TITLE:	ENTOMOLOGY	COURSE CODE:	ZO2105
DATE: 13	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150
		TIME ALLOWED: 2 HOURS	

Answer the following questions:

NOTICE: Rewrite the answers on your answer sheet

I. FIRST GROUP OF QUESTIONS:

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

- a- The basic components of the insect integument are.....,, and
- b- There are many fine vertical tubes traversing exo- and endocuticle called....., serve as.....
- c- Increase in insect size requires the periodic shedding and renewal of the integument; this process is called.....
- d- The hind legs of honey bee are modified for.....
- e- In butter flies and moths, an elongate sucking tube is formed from.....
- f- Cockroaches are harmful to man because.....
- g- In the siphoning moth parts,,....., andare absent.
- h- In the new cuticle, the first laid layer is.....
- i- Clubbed antennae include.....,.....and.....
- j- Scaly wings are the wings of.....


2- Correct each of the following statements: (Total 10 Marks, 2 Mark each)

- a- In opithognathous head the long axis of the inset is vertical and the mouth parts are ventral in position.
- b- In serrate antennae the segments are with long, slender, lateral processes.
- c- The halteres are the fore wings of the Diptera.
- d- The fore legs of grasshopper are adapted for jumping.
- e- The mouth parts of butterflies are adapted for solid feeding.

3- Indicate whether the following statements are true or false (correct the false):

:(Total 20 marks, 2 Mark each)

- a- In chewing type of mouth parts, the maxillary and labial palps are present.
- b- In piercing sucking mouthparts of mosquito female, the piercing stylets are two mandibles and two maxillae.
- c- Styli are present in female insects borne on the 9th abdominal segment.
- d- Only the fore legs of the human louse are of the clinging type.

 1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR JUNIORS (2 ND YEAR) STUDENTS OF SPECIAL ZOOLOGY			
	COURSE TITLE:	ENTOMOLOGY		COURSE CODE: ZO2105
	DATE: 13	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150
		TIME ALLOWED: 2 HOURS		

Answer the following questions:

NOTICE: Rewrite the answers on your answer sheet

I. FIRST GROUP OF QUESTIONS:

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

- The basic components of the insect integument are.....,, and
- There are many fine vertical tubes traversing exo- and endocuticle called....., serve as.....
- Increase in insect size requires the periodic shedding and renewal of the integument; this process is called.....
- The hind legs of honey bee are modified for.....
- In butter flies and moths, an elongate sucking tube is formed from.....
- Cockroaches are harmful to man because.....
- In the siphoning moth parts,,, andare absent.
- In the new cuticle, the first laid layer is.....
- Clubbed antennae include.....and.....
- Scaly wings are the wings of.....

2- Correct each of the following statements: (Total 10 Marks, 2 Mark each)

- In opithognathous head the long axis of the inset is vertical and the mouth parts are ventral in position.
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- In chewing type of mouth parts, the maxillary and labial palps are present.
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- Styli are present in female insects borne on the 9th abdominal segment.
- Only the fore legs of the human louse are of the clinging type.

- e- In the majority of butterflies and moths, the proboscis is formed from the laciniae of maxillae.
- f- Digging legs are best known the praying mantis.
- g- The cement layer is last secreted layer in the new cuticle.
- h- The frons bears the median ocellus, while the two lateral ocelli are on the vertex.
- i- The outermost part of the cuticle is exocuticle .
- j- The sting of the bee is a modified ovipositor.

4- Choose the correct answer from between the brackets: (Total 20 marks, 2 Mark each)

- a- The type of wing which is half-membranous and half leathery is (elytra-tegmina-hemielytra).
- b- The mandibles are absent in the (siphoning- sponging- chewing lapping) mouth parts.
- c- The fore wings of cockroaches are of the (tegmina-elytra-membranous) type.
- d- The hamuli are the wing coupling mechanism in (house fly-butter fly-honey bee worker)
- e- Clinging legs are found in (mole cricket-grass hopper-body louse).
- f- The Thysanura are (Exopterygotes- Apterygotes- Endopterygotes).
- g- Click beetles have (serrate-capitate-setaceous) antennae.
- h- In female mosquito the salivary duct is in the (labrum epipharynx-hypopharynx- in the groove between the maxilla).
- i- What is the main function of insect thorax? (locomotion-sensory-feeding).
- j- What stages are found in insects with incomplete metamorphosis (nymphs-pupae-larvae-naiad).

5- Write short notes on : (Total 5 Marks)

- a- The general characters and The economic importance of Blattodea. (2.5 mark)
- b- Ecdysis process. (2.5 mark)

Group two**Question no: 1 Choose the correct answer from between brackets:**


- 1-The main digestion occur in (foregut-hindgut-midgut). (3Marks)
- 2- The uric acid is excreted by (simple diffusion-passive transport-active transport) through Malpighian tubule. (3Marks)
- 3- Honey stomach of worker honey bee is (ectodermal-endodermal-mesodermal) in origin. (3Marks)
- 4- Circulatory system of insects is (dorsal open-ventral open-dorsal close). (3Marks)
- 5- Storage excretion takes place in (Gizzard-fat body-Malpighian tubule). (3Marks)
- 6- Peritrophic membrane formed in(crop-rectum-midgut) of insects. (3Marks)

Question 2: write short notes on the following:

- 1- Mechanism of respiration in insects. (11Marks)
- 2- Types of enzyme secretion by midgut of insects. (11Marks)
- 3-Types of reproduction in insects. (10Marks)
- 4- Mechanism of excretion through Malpighian tubule. (12.5Marks)
- 5- Structure and function of filter chamber in Homoptera insects. (12.5Marks)

Examiner:Prof.Dr.Mohamed soliman.

Prof.Dr.El Saied naiem.

	TANTA UNIVERSITY FACULTY OF SCIENCE		
	DEPARTMENT OF ZOOLOGY		
	EXAMINATION FOR (SECOND YEAR) CREDIT HOUR STUDENTS OF CHEMISTRY/ ZOOLOGY		
الفرقة الثانية كيمياء حيوان	COURSE TITLE: INVERTEBRATE SYSTEMATIC & PHYLOGENY		COURSE CODE: 2123
JANUARY, 2013	LEVEL: 2 SEMESTER: 1	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

First question : (37.5 marks)

- A) Write in details on the kingdoms of organisms. (10 marks)
- B) Illustrate by drawing only the body wall of sponge then mention the functions of its various constituents. (10 marks)
- C) Mention the affinities of sponges with the Protozoans and Cnidarians. (17.5 marks)

Second question : (37.5 marks)

A) Choose the correct answer (12 marks):

- The protozoans are a) multicellular b) diploplastic c) acoelomates d) unicellular
- The feeding plant-like in protozoan called a) holophytic b) saprozoic c) holozoic d) parasitic
- The meganucleus is present in a) ciliates b) sarcodina. c) mastigophora d) sporozoa
- In foraminifera the type of pseudopodia is a) Reticulopodia b) Lobopodia. C) Axopodia d) Filopodia
- Cutaneous leishmaniasis caused by a) *Leishmania donovani* b) *Leishmania tropica* c) *Trypanosoma cruzi*
- Leishmania* is dimorphic, its life cycle has two forms: a) Trypanosome and crithidial b) Trypanosome and promastigote. c) Amastigote and promastigote
- Which of the following do not belong to Sarcomastigophoran: a) *Trypanosoma* b) *Toxoplasma* c) *Leishmania* d) *Trichomonas*
- The members of ciliates have typical complex reproduction by: a) Autogamy and sporogony b) Transvers binary fission and conjugation c) Longitudinal binary fission and autogamy
- Which of the following disease(s) is/are transmitted by sexual intercourse a) *Trypanosomiasis* b) *trichomoniasis* c) *Giardiasis* d) All of the above

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10- Organisms, which have spore-forming stage in their life cycle and lack special locomotory organelles, belong to:

- a) Sarcomastigophoran. b) Sporozoan c) Ciliata d) Sarcodina

11- In Protozoans, which of the following describes the function of a contractile vacuole.

- a) Sites of food digestion b) Maintain osmotic balance by continuous water expulsion and excretion.
c) Structures that accept male gametes during sexual reproduction d) Sites for photosynthesis

12- Intestinal development of *T. gondii* in the final host (cat) come after ingestion of:

- a) Mature oocyst (2-3 days) contains two sporocysts each with four sporozoites. b) Immature oocyst (1 day) contain sporozoites after ingestion of oocysts or brains of mice contain cysts. c) Shizogony d) Gametogony.

B) Identify the following terms (10 marks):

- a- Cytozoic b- Coelozoic c- Holozoic d- Saprozoic e- Microanucleus

C) Mention the Life cycle of *Balantidium coli*, and illustrate your answer with labeled drawing (6.5 marks)

D) Give a short account on the following (9 marks):

- 1- The alternation of generation in foraminifera.
- 2- Trophozoite transformation from amoebic to flagellate in *Naegleria fowleri*.
- 3- The euglenoid movement.

Third question:(37.5 marks)

A) Write in details on the following points with fully labeled drawings: (12 marks)

- 1) Kinds and functions of nematocyst found in *Hydra*.
- 2) Formation of testes and ovary in *Hydra*.
- 3) Types of locomotion in *Hydra*.

B) Compare between the following: (6.5 marks)

- 1) Polyp and medusa (in a form of table).
- 2) General characters of Scyphozoa and Anthozoa (only four characters)

C) Complete the missing words: (8 marks)

- 1) Basis of classification of Cnidaria are.....
- 2) Hydra consists from 5 regions namely.....
- 3) Digestion in Cnidaria are..... and....
- 4) When Hydra feeds, ...penetrate prey and inject..... into it, thencoils around it.

D) Give a brief definition to the following: (11 marks)

- | | | | |
|--------------------------|---------------------------|-----------------|----------------|
| a) Budding | b) polymorphism in Obelia | c) Siphonoglyph | d) mesenteries |
| e) interstitial cells | f) sensory cells | g) mesoglea | h) stomodaeum |
| j) gastrovascular cavity | k) stenotele | | i) gland cells |

Fourth question: (37.5 marks)

A Give a short account on the followings (7marks)

- (a) Microtriches . (b) Renette cells. (c) Rhabdites. (d) pseudocoelom.

B) Using a table give 5 differences between each of the following.(10marks)

- (a) *Ascaris lumbricoides* and *Ancylostoma duodenale*.
 (b) Pseudophyllidean and Cyclophyllidean tapeworms.

C) Rewrite the correct answer of the followings in your paper.(10marks)

- (1) Premative Nematodes have:- a- three lips. b- five lips. c- six lips.
- (2) Genital pore of *Hymenolepis nana* is:- a- dorsal. b- lateral. c-ventral.
- (3) Monogenea has:- a-no digestive system. b-incomplete digestive system. c-complete digestive system.
- (4) Monoecious means:- a-hermaphroditic b-sexs are separate c-parasitic.
- (5) Nematoda classified into classes according to: a-presence of phasmids b- absence of phasmids c- presence of amphids.
- (6) Body wall of Digenea composed of:- a-cuticle. b-tegument. c-dermis.
- (7) Adult *Enterobius* lives in:- a-small intestine. b-lage intestine c-liver.
- (8) Infective stage of *Schistosoma* is:- a-cercaria. b-metacercaria. c-eggs.
- (9) Intermediate host of infection of *Taenia solium*:- a-cattle. b-pig. c-rat.
- (10) Life cycle of Aspidogastrea is:- a-direct. b- indirect c-unknown.

D) Illustrate with fully labelled drawings whenever possible (7,5marks)

(a) Types of attachment organs of cestodes.

(b) Digestive system of *Planaria sp.*

E) Give the term of each of the followings:- (3marks)


(a) Triploblastic acoelomate bilaterally symmetrical ciliated body wall animals.

(b) Intestinal flukes have three suckers.

(c) Asexual process of forming segments.

EXAMINERS	PROF. MOHAMED HASSAN MONA	PROF. MOSTAFA EL MAHLAWY
	DR. HOWAIDA ABOU SHAFY	DR. WESAM SALAMA

BEST WISHES AND GOOD LUCK

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF ENTOMOLOGY			
	COURSE TITLE:	Economic Entomology		COURSE CODE:1202
DATE:	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS:150	TIME ALLOWED: 2 HOURS

Answer the Following Question groups:

Notice: Rewrite the answers on your answer sheet

I.FIRST GROUP OF QUESTION: (Time allowed 30 minutes, Total 38 Marks)

1. **Choose from between the brackets the correct answer: (Total 7 Marks, 1 Mark each)**
 - a. Grains are mainly attacked by the Angoumois grain moth (in granaries- in mills-in the field).
 - b. Dermestid beetles are common pests (only in domestic situations---in museum and domestic situation---only in museum situations).
 - c. Mud tubes extending from the ground surface up to wooden building materials are sure signs of infestation with (dry wood -damp wood -subterranean) termites.
 - d. Epidemic typhus is transmitted to humans by (fleas----lice----mosquitoes).
 - e. The fish *Gambusia* is used to control (black fly larvae----stable fly larvae---mosquito larvae).
 - f. The rice weevil is the most destructive pest of (only legumes-----only raw cereal grains- ----cereal grains and solidified mealy materials).
 - g. (Only adults----only larvae---both adults and larvae) of the lesser grain borer cause serious damage to a great variety of grains.
2. **Fill in the blanks with the appropriate words: (Total 10 Marks, 1 Mark each)**
 - a. The cigarette beetle is an important pest of.....
 - b. The drug store beetle feeds on.....and is a serious pest in.....
 - c. The black flies of the genus *Simulium* are vectors of.....causing.....
 - d. The horse flies are serious pests of.....and are vectors of.....
 - e. The body louse, *Pediculus humanus* is the vector of.....
 - f. Infestation of horses with horse bot flies can result in.....
 - g. The pests of stored products are the most expensive of all insects to feed because...
 - h. The human filarial parasite, *Wuchereria bancrofti* is transmitted by.....and causes in humans.....
 - i. Control measures directed against horse flies are.....and.....
 - j. The Black Death that killed 25 million people in Europe was caused by.....and transmitted by.....

3. Indicate whether the following statements are true or false : (Total 2 Marks, 1 Mark each)

- a. The granary weevil attacks various kinds of stored grain and is fully as important as the rice weevil.
- b. The human flea is the most important vector in the transmission of plague.

4. Correct the following statements: (Total 8 Marks, 1 Mark each)

- a. The presence of shot holes in furniture is a good evidence of subterranean termite infestation.
 - b. The rice weevil is a domesticated species.
 - c. The caddis is native of Asia that has been carried with grain and grain products to all parts of the world.
 - d. The screw worm caused great concern in 1988, where it was reported in Sudan; the first time outside the New World.
 - e. Bees, wasps and ants attack man because of a need to drive food.
 - f. Both male and female black fly feed on blood at night.
 - g. Grains should be stored in damp situations
 - h. The sterile male technique was developed for bot flies in the early 1950s and eradicated the bot flies.
5. How external and internal insect parasites cause high economic losses in farm animal productivity? (3 Marks)
6. Write short note on the economic importance and type of injury of:(Total 8 Marks)
- a. Poultry lice. (2 Marks)
 - b. Bruchid beetles. (3 Marks)
 - c. Mosquitoes. (3 Marks)

II. SECOND GROUP OF QUESTIONS: (Time allowed: 30 minutes, Total 37 Marks)

1. Fill in the blanks below with the appropriate words: (15 marks, 3marks for each)

- a. ...It is an internal fungal disease of cotton bolls. The disease is caused by
- b. Species of insects producing the toxic substances were termedThe plant injuries caused by insect toxins is referred to as
- c. Fire blight is caused by, and carried by..... from cankers to healthy blossoms and initiate the infection.
- d.is one of the most serious diseases of banana. The virus is spread by.....
- e.is a fungal disease cause a reduction in cereal crop yield in addition to the toxic effect when eaten by man or animal. The fungus is

2. Correct the following statements: (Total 15 Marks, 3Marks for each)

- a. Endosepsis is one of the common fungal diseases of citrus fruits which causes by dried fruit beetle.
- b. The adults of the tomato psyllid are toxicogenic and the disease is caused by a toxic substance injected into the plant by the act of oviposition.
- c. Blackleg of potatoes is a bacterial soft rot caused by Claviceps purpurea. The striped cucumber beetle is an important agent of dissemination and inoculation of the bacteria.
- d. Bacterial wilt of cucurbits is caused by Erwinia amylovora. The disease is spread by Flies and ants.
- e. A wilt of cucurbits is caused by leaf hoppers. The insect inject a toxic substance into the plant during the feeding process.

3. Give an account about each of the following: (Total 7 Marks)

- a. Bacterial rot of apple. (2 marks)
- b. The cotton leaf curl virus. (2 marks)
- c. The hopper burn of potatoes. (2 marks)
- d. The cotton leaf curl virus. (1 mark)

III. THIRD GROUP OF QUESTION: (Time allowed 30 minutes, Total 37.5 Marks)

1. Complete the following sentences with appropriate words: (Total 27.5, 2.5 Marks each)

- a. On the basis of their relation to human economy, insects may be classified into two general groups.....and.....
- b. Honey is produced by....., which collect.....and then.....
- c.is the secretion from hypodermal glands on the underside of the abdomen of honeybee.
- d. Insects perform a valuable service as scavengers by.....and.....
- e. Shellac is produced by.....and this shellac is used in making.....
- f.and.....are the best known examples of insects emit light.
- g. Many insect galls contain materials that are used in making.....

- h. is an example of insect predator, while..... is an example of insect parasite.
- i. Cantharidin, an extract from the bodies of, has been used in the treatment of...
- j. Many insects are used in scientific research because.....
- k. The aesthetic value of insects means.....

1. Correct the underlined words: (Total 10 Marks, 2 Marks each)

- a. Ichneumon wasp is typical example of insect predator.
- b. Both adults and larvae of Aphid lion are predators.
- c. Honey is a natural secretion produced by honey bee.
- d. Jojoba is an example of undesirable plant destroyed by insects.
- e. Only adults of ground beetles are predators.

IV. FOURTH GROUP OF QUESTIONS: (Time allowed: 30 min, 37 Marks)

1. Give reasons of the following: (Total 7 Marks, 3.5 each)

- a. The ants themselves never injure the corn plant in any way.
- b. It is difficult to control internal feeders.

2. Discuss the following sentences: (Total 6 Marks, 3 Marks each)

- a. Cut worms injure plants in three major ways.
- b. Insects sometimes remove parts of the plant for the construction of nests; they do not feed on these materials (give only one example).

3. Fill in the blanks with the appropriate words: (Total 12 Marks, 2 Marks each)


- a. Some insect may feed internally within the plant tissue, this group is called such and.....
- b. Common examples of chewing insects that destroy vegetable crops are and.....
- c. Aphids secrete large amount of which is sugary liquid composed of ... and
- d. The damage done by plant bugs varies with different species, owing to the most injurious bug in this group is
- e. Five orders of insects contain gall making species are , , ... , and...
- f. ... feed on the tissue between the upper and lower epidermis of leaf , to be suitable for separating the two surfaces of the leaf they tend to be and have

4. Choose from between the brackets the correct answer: (Total 12 Marks, 2 Mark each)

- a. Double cotton seeds are formed by the hibernating larvae of (the cotton leaf worm----- the cotton boll weevil-----the pink boll worm).
- b. The mole cricket is an example of the (sap suckers----- leaf chewers----- root chewers).
- c. The term cut worm is used for (Nymph ----- Adult ---- Larva) of many species of moths.
- d. The body of cottony cushion scale is entirely covered with (an oval cocoon – yellowish or white wax ----- sugary liquid).
- e. White grubs are pests of (onion-----tomatoes-----potatoes).
- f. Cerambycidae larvae bore in (corn ears----- hard wood----- cotton bolls).

EXAMINERS	PROF. DR. AMAL SEIF	DR. MERVAT RAFIK
	DR. SAMER EZZAT	DR. NOHA DABOUR

Best wishes

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY		
	EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF ZOOLOGY		
DATE:	13 JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS 150
COURSE TITLE:	ECOLOGICAL ADAPTATIONS	COURSE CODE: ZO 2107	
			TIME ALLOWED: 3 HOURS

Answer the following questions:

First Question (20 marks) 2 marks each:

Fill in the blanks with the appropriate words:

- 1-Evolution involves two interrelated phenomena.....and.....
- 2-Natural selection affect on the distribution of phenotypes in a population in several ways.....
- 3-Fitness is a measure of.....
- 4-The speed of behavioral adaptation is directly related to.....
- 5-The rapid acclimatization are called.....
- 6- Mammalian skin is much thicker than that of birds and often has a continuous layer of beneath the dermis such as whales.
- 7- Carnivores such ashaveto kill and tear meat.
- 8- Mammals can change insulation intensity by
- 9- The best strategy for heat loss in the case of larger terrestrial animals is.....
Birds and mammals develop it by and
- 10- Anacondas and other snakes haveto protect their bodies.

Second Question (5 Marks):

Indicate whether the following statements true or false with the correction:

- 1- Desert animals posses behavioral adaptation to reduce respiratory water loss ().
- 2- The regulation of body temperature is the problem faces the desert animals due to dehydration ().
- 3- In smaller animals panting is the most common method of cooling ()
- 4- The body temperature of hibernated species rises to decrease the need of food ()
- 5- Animals that are not well adapted to an environment may survive and breed ().

Third Question (20 Marks):

Choose the correct answer:

- 1- A generalized animal eat (a range of food – a specific type of food). (2Marks)
- 2- A heart (pumps blood- emits sound) that is its function. (2Marks)
- 3- Non genetic adaptations occur (more rapidly - more slowly-moderately) than genetic adaptation. (2Marks)
- 4- The degree of flexibility is (inherited – not inherited). (2Marks)
- 5- Social learning is supreme for (many mammals- human) (2Marks)
- 6- A Viceroy butterfly looks like the Monarch butterfly. What is this kind of adaptation?
a. Mimicry b. Camouflage c. Hibernation d. migration
- 7- The changes that make an organism better suited to their environments is developed through a process called: (1 Mark)
a. Adaptation b. Symmetry c. Camouflage d. Exoskeleton

----- (انظر باقى الأسئلة فى الخلف)

- 8- Bears are able to survive winter months because they do which of the following? (1 Mark)
 a. Hunt b. Fish c. Hibernate d. Keep moving
- 9- When the season change, animals such as geese, salmon, and whale to find a new place to live. (1 Mark)
 a. Migrate b. Hunt c. Fish d. Stick together
- 10- Amphibians & reptiles cope with heat loss by..... (1 Mark)
 a. insulation b. evaporative cooling & behavioral adaptation c. natural antifreeze.
- 11- birds avoid overheating by (1 Mark)
 a. feathers b. angular fluttering c. panting
- 12- A tiger's stripes an example of (1 Mark)
 a. mimicry b. Camouflage c. migration d. metamorphosis
- 13- Animals who hibernate usually live in a cold..... (1 Mark)
 a. Climate b. Adaptation c. Instinct d. shelter
- 14- A long period of deep sleep is called..... (1 Mark)
 a. Mimicry b. Hibernation c. coloration d. Camouflage
- 15- There are 2 pathways which lead to the formation of a new species. These are (1 Mark)
 a. transformation & divergence. B. reproductive & convergence. C. division & genetic.

Fourth Question (50 Marks):

Give short account on: (illustrating your answer with examples)


- 1- Vestigial organs. (10 Marks)
- 2- Adaptive evolution model. (10 Marks)
- 3- Disruptive selection. (10 Marks)
- 4- Chameleon adaptation. (10 marks)
- 5- Batesian and Mullerian mimicry. (10 marks)

Fifth Question (55 Marks):

- 1- What is the inter related phenomena of evolution? (5Marks)
- 2- Why are humans exempt from natural selection? (5Marks)
- 3- Define: assortative mating- fecundity selection. (5Marks)
- 4- what is the difference between stabilizing selection and directional selection? (5Marks)
- 5- Define the following: automimicry - speciation - structural adaptation. (15 marks)
- 6- What is the kinds of Body covering? (10 marks)
- 7- In worm environments, birds and mammals employ different adaptations and strategies to maximize heat loss. Explain this statement. (10 marks)

With Best Wishes

EXAMINERS	Prof.Dr. / Ensaf El-Sayed El-Gayar Prof.Dr./ Lamiaa Abed El-Wahab Sharra
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF ENTOMOLOGY			
	COURSE TITLE:	Insect Morphology and Anatomy		COURSE CODE: 2121
DATE:	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS:150	TIME ALLOWED: 2 HOURS

Answer the following questions:

NOTICE: Rewrite the answers on your answer sheet

I. FIRST GROUP OF QUESTIONS: **(Total 26 Marks)**

1. Fill in the blanks with the appropriate words: **(Total 5 Marks, 1 Mark each)**

- Functionally, the thorax is.....tagma.
- The inner most lining of the tracheae is a thin layer of.....known as.....
- The prothoracic spiracles are in the pleural region between.....and....., while the mesothoracic spiracles are between.....and.....
- The simple spiracle consists of a simple.....surrounded by.....
- The thorax is connected to the head by.....

2. Indicate whether the following statements are true or false: (Total 5 Marks, 1 each)

- In air sacs, the taenidia are present.
- The cervical sclerites are typically two on each side.
- The tracheal gills are leaf-like, thin walled outgrowths of the integument in which tracheoles are absent.
- The majority of endoparasitic insects are with closed tracheal system.
- The anterior notal wing process and the posterior notal wing process serve as articular points for the wings.

3. Correct the following statements: **(Total 5 Marks, 1 Mark each)**

- The neck of insects is a sclerotized region.
- The wings are borne by the prothorax and the mesothorax.
- In amphipneustic type only the prothoracic spiracles are open.
- The alinoum bears the internally inflected phragma and the post notum bears the wings.
- The nota of apterygote are formed of the fusion of the mediosternite, the laterosternites and the spinasternite.

4. Choose from between the brackets the correct answer: (Total 5 Marks, 1 each)

- a. The siphon of *Eristalis* is (short tube-----long tube----- long and telescopic).
 - b. The alinotum is divides into two sclerites, an anterior (scutum---scutellum-prescutum and a posterior (prescutum---scutum---scutellum).
 - c. Blood gills are found in (Black fly larvae---Black fly pupae--- May fly nymph).
 - d. Haemoglobin is found in the blood of (Dragon fly nymph-----*Chironomus* larvae --- Black fly larva).
 - e. The short spiracular tracheae extends inward from the spiracle and gives (four---- three-----two) main branches.
5. Describe with drawing the structure of the trachea. (3 Marks)
6. What are the functions of the air sacs? (3 Marks)

II. SECOND GROUP OF QUESTIONS: (Total 37 Marks)

1. Write a short notes on the following: (Total 25 Marks)

- a. Digestion and types of enzyme secretion in the mid gut of insects. (6 Marks)
- b. Mechanism of excretion in the Malpighian tubules of insects. (7 Marks)
- c. Filter chamber of Homoptera insects. (6 Marks)
- d. Storage excretion of insects. (6 Marks)

2. Choose the correct answer from between the brackets: (Total 12 Marks)

- b. Fore gut of insects is (ectodermal---endodermal---mesodermal) in origin. (3 Marks)
- c. Uric acid is excreted through the Malpighian tubule by (passive transport---simple diffusion---active transport). (3 Marks)
- d. Honey stomach of worker honey bee belongs to (fore----mid----hind) gut of digestive system. (3 Marks)
- e. Fermentation chamber of white ants belongs to (foregut---mid gut---hind gut). (3Marks)

III. THIRD GROUP OF QUESTIONS: (Total 50 Marks)

1. Correct the following statements (Total 10 Marks, 1 Mark each)

- a. In the hypognathous head type, the long axis of the body is horizontal and the mouth parts are anterior in position.
- b. In pectinate antennae, the segments have short triangular projection on one side than the other.
- c. In serrate antennae, the segments with long, slender, lateral process.
- d. In piercing and sucking mouth parts of female mosquito, the salivary ducts open between the grooved labrum and hypopharynx.
- e. In butter flies, the elongate sucking tube or proboscis is formed of lacinia of maxilla.
- f. In elytra wing, the fore wings are leathery.
- g. The middle and hind legs of aquatic beetles beer two rows of spines on femur and tibia.
- h. Pericardial cells secrete the lipoprotein.

- i. In telotrophic ovariole, the eggs and masses of nurse cells alternate in the ovarian tube.
 - j. Obtect pupa is with the legs and wings free.
- 2. Choose the correct answer from between the brackets: (Total 10Marks, 1 each)**
- a. The type of mouth parts of dragon fly naiad is (chewing-grasping cutting –chewing sucking)
 - b. The prothorax (always bears wings---sometimes bears wings-----never bears wings).
 - c. In clavate antennae, the segments increase (suddenly---gradually---expand laterally).
 - d. The fore wings of cockroaches are (tegmina-----elytra-----hemelytra).
 - e. In the fore legs of the predatory praying mantis the (coxa---tibia-- -femur) are very long.
 - f. The (fore -----middle -----hind) legs of honey bee worker are collecting legs.
 - g. Lateral slit-like openings between heart chambers are called (valve----ostia-----lips)
 - h. In the testicular follicle, (two-----three-----four) regions are recognized.
 - i. The region in which the spermatocytes are produced is (germarium----zone of growth-zone of division).
 - j. The hamuli are the wing coupling mechanism in (Lepidoptera-Hymenoptera-Odonata).
- 3. Complete the following statements with the appropriate words: (Total 10Marks, 1 Mark each)**
- a. The.....bears the median ocellus, while the two lateral ocelli are on the...
 - b. In the mouth parts of worker honey bee, an additional food channel is formed by..
 - c. Clubbed antennae includeand.....and.....
 - d. The antennae of male mosquito are....., while those of the female are.....
 - e. The fore legs of honey bee having a.....
 - f. In lace wings, the number of veins.....
 - g. The labrum of chewing mouth parts prevents.....
 - h. In jumping leg, the hind femora are housing.....
 - i. The haemolymph of insects consists of.....and.....
 - j. The opening for the entrance of spermatozoa into the egg is termed.....
- 4. Indicate whether the following statements are true or false: (Total 10 Marks, 1 Each)**
- a. The salivary duct in the piercing and sucking type of plant feeders is in the maxilla.
 - b. The wings of butterflies and moths possess scales of different colours.
 - c. Clinging legs are the fore legs of human louse.
 - d. The frenulum of female moths consists of single strong spine.
 - e. In moniliform antennae, the segments have short triangular projection on one side.
 - f. The antennae of the honey bee are of the geniculate type.
 - g. The ovaries of female insects are located in the body cavity on either side of the ventral nerve cord.
 - h. In piercing sucking mouth parts of mosquito female, the piercing stylets are two mandibles and two maxillae.
 - i. The aorta is a simple tube with a number of ostia.
 - j. The subgena is cut off from the gena by the genal sulcus.

5. Discuss with drawing:

(Total 10Marks)

- a. Types of ovarioles in female reproductive systems. (3Marks)
- b. Two types of mouth parts found in order: Diptera. (6 Marks)
- c. Types of insect haemocytes. (1Mark)

IV. FOURTH GROUP OF QUESTIONS:

(Total 37 Marks)

1. Correct the underlined words:

(Total 20 Marks, 2 Marks for each)

- a. Campaniform sensilla are olfactory receptors.
- b. The cement layer of insect integument is secreted by haemocytes.
- c. The stomodeal sympathetic nervous system innervates the hind gut and spiracles.
- d. Dorsal ocelli are formed in adult insects and the larvae of holometabolous insects.
- e. Chordotonal organ is a compound structures composed of a group of units called ommatidia.
- f. The suboesophageal ganglion arising from the fusion of the ganglia of the intercalary, maxillary and labial segments.
- g. The cellular processes of the integument are composed entirely of cuticle and may take several forms such as spines, ridges or nodules.
- h. The neurons are classified according to their structures into: sensory, motor and association neurons.
- i. When the ommatidia are in large numbers, the facets have circular forms.
- j. The layer of the exocuticle that is primarily responsible for waterproofing is the wax layer.

2. Fill in the blanks below with the appropriate words: (10 Marks, 2 Marks for each)

- a. Johnston's organ subserves sound perception in.....
- b. The basic components of the insect integument are.....,, and
- c. There are many fine vertical tubes traversing exo- and endocuticle called....., serve as.....
- d. The insect brain consists of.....,, and
- e. The visceral nervous system is divisible intoand


3. Answer the following questions:

(Total 7 Marks)

- a. Differentiate between the insect mechanosensory, chemosensory, and contact chemosensory sensilla. (3 Marks)
- b. Discuss the various functions of the insect integument. (2 Marks)
- c. Discuss the process of insect moulting. (2 Marks)

EXAMINERS	PROF.DR. AMAL SEIF	PROF. DR. ELSAEED NAEEM
	DR. IMAN ELHUSSEINY	DR. MERVAT RAFIK

Good Luck

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY		
	EXAMINATION FOR SENIORS (SECOND YEAR) STUDENTS OF SPECIAL ZOOLOGY		
	COURSE TITLE:	EGYPTIAN FAUNA	COURSE CODE:ZO 2109
DATE:15	JANUARY,2013	TERM: FIRST	TOTAL ASSESSMENT MARKS:100
			TIME ALLOWED: 2HOURS

Answer the following questions:

1. Choose from between the brackets the correct answer (20 Marks)

- Shallow standing water bodies and they are generally characterized by quite waters and abundant vegetation called (rivers-ponds-lakes)
- The river and sea water meet in (estuarine-swamps-springs).
- The highest fluctuations in temperature are notable character for (marine-fresh water-terrestrial) habitat.
- Animals are endowed with very keen senses of sight smell and hearing. The jack rabbits and Jerboas have long ears. Intelligent is another attribute of the (desert-forest-domestic) animals.
- Low rainfall and extremes of temperature are the notable factors that determine the populations in (deserts-forests-steppes)

2. Fill in the blanks with the appropriate words (20 Marks)

- The biosphere is divided into three principal divisions or habitats:
1....., 2....., 3.....
- Factors effecting estuarine fauna are: -----, -----
- , -----, -----, -----, --- are the adaptation ways for estuarine fauna.
- ' ----- are examples for protecting desert animals eyes against drifting sands.

e. The sources of getting moisture in desert animals are
.....,

3. Mention the characteristics of deep sea animals. (15 Marks)


4. Demonstrate, using examples, the moisture conservation in desert animals. (15 Marks)

5. Differentiate between the lotic habitat and the lentic habitat and their fauna (15 Marks)

6. Animals permanently inhabiting forests show many adaptations to forest life, Comment. (15 Marks)

Best wishes!

EXAMINERS
PROF.DR. MOHAMED KHALIL
PROF.DR.HALA ADEL-LATTIF

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR SOPHOMORES (SECOND YEAR) STUDENTS OF ENTOMOLOGY			
	COURSE TITLE:	Economic Entomology		COURSE CODE:1202
DATE:	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS:150	TIME ALLOWED: 2 HOURS

Answer the Following Question groups:

Notice: Rewrite the answers on your answer sheet

I.FIRST GROUP OF QUESTION: (Time allowed 30 minutes, Total 38 Marks)

1. Choose from between the brackets the correct answer: (Total 7 Marks, 1 Mark each)

- Grains are mainly attacked by the Angoumois grain moth (in granaries- in mills-in the field).
- Dermestid beetles are common pests (only in domestic situations---in museum and domestic situation---only in museum situations).
- Mud tubes extending from the ground surface up to wooden building materials are sure signs of infestation with (dry wood -damp wood -subterranean) termites.
- Epidemic typhus is transmitted to humans by (fleas----lice----mosquitoes).
- The fish *Gambusia* is used to control (black fly larvae-----stable fly larvae---mosquito larvae).
- The rice weevil is the most destructive pest of (only legumes-----only raw cereal grains- ----cereal grains and solidified mealy materials).
- (Only adults----only larvae---both adults and larvae) of the lesser grain borer cause serious damage to a great variety of grains.

2. Fill in the blanks with the appropriate words: (Total 10 Marks, 1 Mark each)

- The cigarette beetle is an important pest of.....
- The drug store beetle feeds on.....and is a serious pest in.....
- The black flies of the genus *Simulium* are vectors of.....causing.....
- The horse flies are serious pests of.....and are vectors of.....
- The body louse, *Pediculus humanus* is the vector of.....
- Infestation of horses with horse bot flies can result in.....
- The pests of stored products are the most expensive of all insects to feed because...
- The human filarial parasite, *Wuchereria bancrofti* is transmitted by.....and causes in humans.....
- Control measures directed against horse flies are.....and.....
- The Black Death that killed 25 million people in Europe was caused by.....and transmitted by.....

3. Indicate whether the following statements are true or false : (Total 2 Marks, 1 Mark each)

- a. The granary weevil attacks various kinds of stored grain and is fully as important as the rice weevil.
- b. The human flea is the most important vector in the transmission of plague.

4. Correct the following statements: (Total 8 Marks, 1 Mark each)

- a. The presence of shot holes in furniture is a good evidence of subterranean termite infestation.
 - b. The rice weevil is a domesticated species.
 - c. The caddis is native of Asia that has been carried with grain and grain products to all parts of the world.
 - d. The screw worm caused great concern in 1988, where it was reported in Sudan; the first time outside the New World.
 - e. Bees, wasps and ants attack man because of a need to drive food.
 - f. Both male and female black fly feed on blood at night.
 - g. Grains should be stored in damp situations
 - h. The sterile male technique was developed for bot flies in the early 1950s and eradicated the bot flies.
5. How external and internal insect parasites cause high economic losses in farm animal productivity? (3 Marks)
6. Write short note on the economic importance and type of injury of:(Total 8 Marks)
- a. Poultry lice. (2 Marks)
 - b. Bruchid beetles. (3 Marks)
 - c. Mosquitoes. (3 Marks)

II. SECOND GROUP OF QUESTIONS: (Time allowed: 30 minutes, Total 37 Marks)

1. Fill in the blanks below with the appropriate words: (15 marks, 3marks for each)

- a. ...It is an internal fungal disease of cotton bolls. The disease is caused by
- b. Species of insects producing the toxic substances were termedThe plant injuries caused by insect toxins is referred to as
- c. Fire blight is caused by, and carried by..... from cankers to healthy blossoms and initiate the infection.
- d.is one of the most serious diseases of banana. The virus is spread by.....
- e.is a fungal disease cause a reduction in cereal crop yield in addition to the toxic effect when eaten by man or animal. The fungus is

2. Correct the following statements: (Total 15 Marks, 3Marks for each)

- a. Endosepsis is one of the common fungal diseases of citrus fruits which causes by dried fruit beetle.
- b. The adults of the tomato psyllid are toxicogenic and the disease is caused by a toxic substance injected into the plant by the act of oviposition.
- c. Blackleg of potatoes is a bacterial soft rot caused by Claviceps purpurea. The striped cucumber beetle is an important agent of dissemination and inoculation of the bacteria.
- d. Bacterial wilt of cucurbits is caused by Erwinia amylovora. The disease is spread by Flies and ants.
- e. A wilt of cucurbits is caused by leaf hoppers. The insect inject a toxic substance into the plant during the feeding process.

3. Give an account about each of the following: (Total 7 Marks)

- a. Bacterial rot of apple. (2 marks)
- b. The cotton leaf curl virus. (2 marks)
- c. The hopper burn of potatoes. (2 marks)
- d. The cotton leaf curl virus. (1 mark)

III. THIRD GROUP OF QUESTION: (Time allowed 30 minutes, Total 37.5 Marks)

1. Complete the following sentences with appropriate words: (Total 27.5, 2.5 Marks each)

- a. On the basis of their relation to human economy, insects may be classified into two general groups.....and.....
- b. Honey is produced by....., which collect.....and then.....
- c.is the secretion from hypodermal glands on the underside of the abdomen of honeybee.
- d. Insects perform a valuable service as scavengers by.....and.....
- e. Shellac is produced by.....and this shellac is used in making.....
- f.and.....are the best known examples of insects emit light.
- g. Many insect galls contain materials that are used in making.....