	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY ENTOMOLOGY BRANCH			
	EXAMINATION FOR (SECOND YEAR) STUDENTS OF ZOOLOGY			
COURSE TITLE:	ENTOMOLOGY		COURSE CODE:ZO 2105	
DATE	JANUARY 2018	TERM: FIRST	TOTAL ASSESSMENT MARKS:150	TIME ALLOWED: 2 HOURS

Answer the following questions in your answer booklet

PART I (55 marks)

1. State whether the following sentences are true or false with correction (15 marks, each 1.5):

- The antennae of ants are the moniliform type.
- The forewings of the dragonfly are the membranous type.
- True-legs are outgrowths of abdominal segments of caterpillars.
- The immature stage of hemimetabolous insects is called nymphs.
- The molting fluid contains chitinase and protease capable of digesting the endocuticle.
- Stinging apparatus is a modified copulatory organ of males honeybee.
- Hexapoda contains insects and non-insect organisms.
- Naiad of a dragonfly has piercing-sucking MP.
- The insect has many applications in bionics.
- Insects can be used as models for many human diseases.

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

- If the terminal segment of antennae is gradually enlarged, the type is termed.....
- In siphoning mouthparts, The absent part is the
- The labrum of chewing type is bilobed plate moving.....
- The cuticle is a noncellular layer secreted by
- In the pupa, the legs and wings are glued to the body which is covered by a cocoon.
- The integument of insects is an against many pathogens and insecticides.
- are paired segmented appendages located on the head usually below or between the compound eyes.
-are the legs of a human louse.
- The region consists of the segments beyond the 9th abdominal.
- Insects are the most important group of animals in term of

3. Choose the right answers in the following (Total: 12 marks, each 1.5):


- The hind legs of honeybee are (collecting - swimming – jumping).
- In the (frenulate – hamulate – jugate) coupling apparatus, tiny hooks of the hindwing fasten into a fold in the front wing.
- The (Drosophila – mosquito – butterfly) is a common model to study human diseases and Genetics.
- The hindwing of Diptera is (halter – hairy – membranous).
- The earwigs have powerful (cornicles – styli - forceps-like cerci).
- The (noncellular – internal – multicellular) integumentary processes are hollow outgrowths of the integument lined with epidermal cells.
- Dengue is a viral disease transmitted to humans by (mosquitoes – fleas – lice).
- A bee beat its wings at (180 - 5 – 100 – 500) Hz.

4. Illustrate with fully labeled drawings the mechanism of walking in insects. (8 marks):

PART II (65 marks)

5. Choose the correct answer (15 marks, 2.5 marks each):

- The honey stomach of worker honeybee is (ectodermal - mesodermal - endodermal) in origin.
- Most of the digestion takes place in (gizzard – oesophagus - midgut) of insects.
- Fermination chamber is a modification in (rectum – midgut - heart) of white ants insect.

 كلية العلوم جامعة طنطا	TANTA UNIVERSITY FACULTY OF SCIENCE ZOOLOGY DEPARTMENT			م/ د/ ع/ ط/ ه/
	FINAL EXAM OF MAJOR ZOOLOGY, Chemistry / Zoology, Biophysics, BIOCHEMISTRY, CHEM/BIOCHEMISTRY Divisions			
COURSE TITLE:		Cell Biology and Genetics		COURSE CODE: ZO 2101
TERM: 1 st SEMESTER	DATE OF EXAM: JAN, 2018	ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS	

First Question:

(75 marks)

Q1-a: What is different between four only of the following: 30 marks

1. Apoptosis and necrosis.
2. Atrophy and hypertrophy.
3. Histology and histopathology.
4. Hyperplasia and metaplasia.
4. Contrast and resolution.

Q1-b: Write on two only of the following: 15 marks

1. Causes of cell injury.
2. Importance's of apoptosis.
3. Biochemical and physiological responses to cell signaling.

Q1-C: Identifid only four of the following: 20 marks

1. Infarction
2. Depth of Field
3. Cell
4. Centrifugation
5. Oedema
4. Postmortem change

Q1-D: With full labeled drawing illustrate one only of the following: 10 marks

- 1) The morphology of apoptosis and necrosis.
- 2) Cell fractionation to separate the major organelles of the cells.

Second Question:

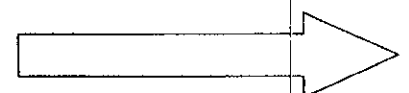
(75 marks)

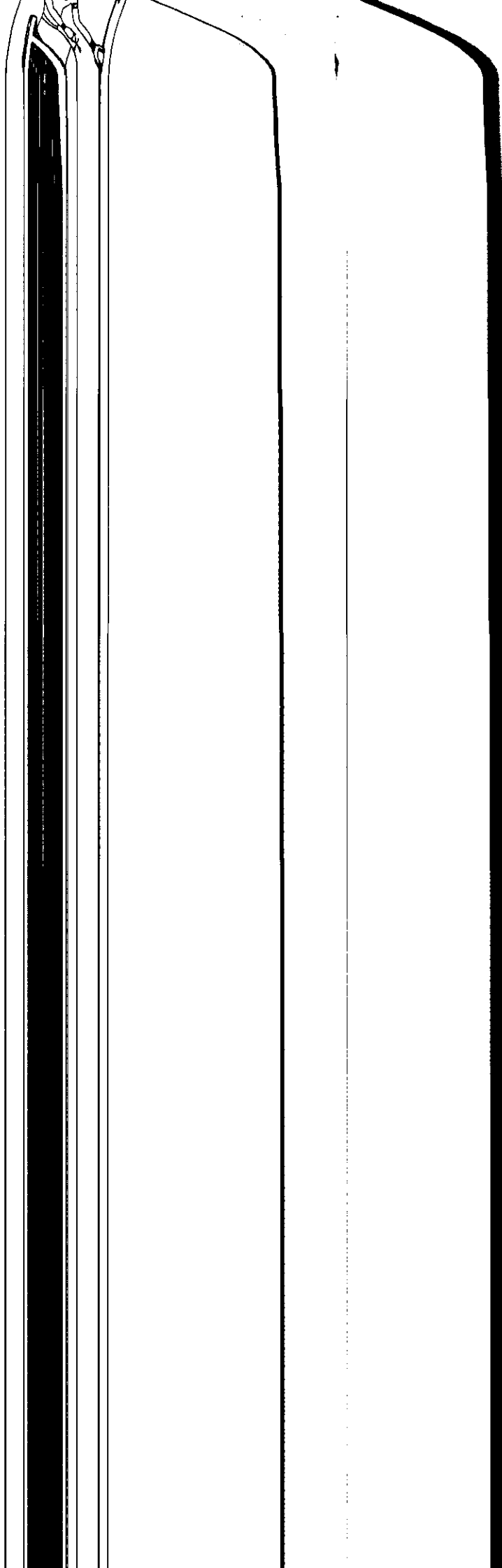
Q2-A: Explain the following briefly using illustrations when necessary (20 Marks):

1. Explain the differences between studying genetics in Biochemistry, Biophysics and Zoology branches of your specialties.
2. Explain the role of the three types of RNA during the formation of a protein.
3. What happens when the ability to repair damage caused by UV light is deficient in a family.
4. Explain briefly the early mechanisms by which how cells decide to start BER.

Q2-B. True (✓) or False (X) (if false, write the correct answer) (20 marks):

1. DNA exists only in nuclei, while RNA exists only in cytoplasm.
2. All DNA in eukaryotic cells comes from both parental and maternal origins.
3. The origin of replication exists at the beginning of each chromosome.
4. Splicing process in DNA repair starts due to activation by the UV light.
5. The mechanism of P-factor depends on hair pin.
6. Initiation of transcription in eukaryotes involves recognition of promoter by transcription factors.
7. Prokaryotic transcripts must not be processed to produce mature mRNAs.
8. The leading strand reading from 5' to 3' is the template strand.
9. Linker histone consists of about 146 bp of DNA wrapped in 1.67 left-handed superhelical turns around the histone octamer.
10. The genetic code is redundant: this means it has multiple codes amounting to the same amino acid.







Tanta University
Faculty of Science
Zoology Department

Final Exam. for Sophomores (2nd Year) students
Ecological Adaptations

Special Zoology
Course Code: ZO 2107
Total assessment Marks: 150
Duration: 2 hours

Date: 16/1/2018
Semester: first

Part 1 Answer the following questions
First Question

A) Answer the following questions:

- 1- The shape of animal's teeth is related to its diet. (explain with example) (4 marks)
- 2- Describe adaptations of four types of beaks and feet. (give examples) (8 marks)
- 3- What is the difference among hibernation, torpor, diapause and aestivation? (4 marks)
- 4- In cold environments, birds and mammals employ some adaptations and strategies to minimize heat loss. (explain) (5 marks)
- 5- Distinguish between protective coloration and protective resemblance. (5 marks)
- 6- How does its body parts adapt the animal to its environment? (5 marks)

B) Fill in the blanks with the appropriate words: (20 marks) 2 mark for each blank

- 1- Organisms can generally be divided into two types of thermoregulation &
- 2- is an adaptation in which the top and bottom sides of animal are two different colours.
- 3- Birds avoid overheating by similar to In mammals.
- 4- There are two pathways which lead to the formation of a new species and
- 5- There is a thick layer of insulating fat in whales which protects them from colder water, this layer is known as
- 6- To cope with low temperatures, some fishes have developed the ability to remain functional even when the water temperature is below freezing, some use to resist in their tissues.

Second Question

A) Indicate whether the following statements true or false with the correction: (24 Marks) 2 marks each (14 marks)

- 1- Ectothermic minimizing heat loss by radiation & insulation only. ()
- 2- Innate behavior is not learned. ()
- 3- A tiger's stripes are an example of mimicry. ()
- 4- Convergence of several unrelated species called Batesian mimicry ()
- 5- Animals who hibernate usually live in a cold adaptation ()
- 6- Behaviors that animals are inherited are called innate behaviors ()
- 7- Estivation is a period of winter dormancy in animals. ()

B) What kind of adaptation?

- 1- The strong, muscular walls of the heart. (10 marks) 1 mark each
- 2- Suppose you place a potted plant on a sunny windowsill. A few days later you notice that the plant is bending towards the window.
- 3- The narrow, long tongue of a snake is adapted for probing the small holes it pecks in tree bark.
- 4- the production of venom by a snake.
- 5- Hedge-hogs make themselves roll up when they sense danger
- 6- Seaweeds have a brown chemical that helps them to absorb light from under water
- 7- Rats come out at night to scavenge
- 8- Owls care for their young in a nest that helps them to avoid some predators
- 9- physical attributes that help an animal survive

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B) Answer the following questions? (35 Marks)

Write a short notes on:

1. Adaptive evolution model of Fisher. ? (7 marks)
2. Ways used for measurement of Fitness? (7marks)
3. Heritability. ? (7 marks)
4. Compromise and conflict between elongated body of the Stream-dwelling salamanders? (7marks)
5. The most basic physiological problem of desert animals. ? (7marks)

With our best wishes

Examiners: Prof. Dr. Ensaf El-Gayar

Prof. Dr. Lamiaa Sharra



Animal Biotechnology
Date: January 3, 2018

Level: 2, Special Zoology, First Semester
Time allowed: 2 hours

Course Code: ZO2111
Total mark: 100

Examiners: Prof. Mohamed Labib Salem and Dr. Mohamed Nassef

QUESTION 1: Complete the blanks with appropriate word(s) (20 marks)

- 1) Chance of two people having exactly same DNA profiling is $1 \sim 30,000 \times 10^6$, except for ____
- 2) In ____ gene therapy, genetic alteration is heritable.
- 3) REases recognition sites are ____ that reflect same sequence on two sides in a 5'→3' direction
- 4) ____ technique used to distinguish between the individuals of the same species by their DNA fragmentations
- 5) Somatic cell nuclear transfer (SCNT) involves ____ the complete nuclear genetic material from one ____ cell into ____ and ____ egg cell.
- 6) In most multicellular organisms, mitochondrial DNA (mtDNA) is ____ inherited.
- 7) ____ is the delivery of therapeutic gene into a patient's cells to treat disease.
- 8) In DNA translation, a ____ protein is required to bring all the translation components together
- 9) Bacterial DNA is not damaged by viral DNA infection due to ____ of certain bases at ____ that is performed by enzymes called ____
- 10) In DNA translation, when a ribosome reaches a stop codon on mRNA, A site of the ribosome accepts a protein called ____ instead of tRNA.
- 11) During RNA processing, the process of introns removal and joining together of exons is called ____ while capping process means addition of ____ to ____ end of mRNA.
- 12) In germ line gene therapy, genetic alteration is ____
- 13) Creating new skin tissue for burn patients is an example of ____ cloning.
- 14) Organisms that contain genes from different species are called ____ organisms

QUESTION 2: Choose the best answer(s) (20 marks)

- 1) Advancement in genetic engineering has been possible due to the discovery of
A. Restriction endonuclease B. Transposons C. Oncogenes D. Exonucleases
- 2) Dolly, The first cloned mammal, was produced by
A. Parthenogenesis B. Replacement of zygote nucleus by somatic nucleus
C. Artificial fertilization D. in vitro fertilization
- 3) Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands. What is so special shown in it? 5' __GAATTC__ 3' / 3' __CTTAAG__ 5'
A. Start codon at the 5' end B. Replication completed C. Palindromic sequence of base pair
- 4) The specific triplet of nitrogen bases on the transfer RNA is called
A. Codon B. none of the above C. Genetic code D. Anticodon
- 5) The transgenic animals are those which have
A. foreign DNA in all of their cells B. foreign DNA in some of their cells
C. foreign RNA in all of their cells D. Both (A) and (C)
- 6) Restriction endonucleases are enzymes which
A. Recognize a specific nucleotide sequence for binding of DNA ligase
B. Make cuts at specific positions within the DNA molecule
C. Remove nucleotides from the ends of the DNA molecule
D. Restrict the action of the enzyme DNA polymerase
- 7) Palindromic sequences in DNA
A. form "blunt" ends when cut by REases B. are not useful in recombinant DNA
C. reflect the same sequence on two sides D. all of the previous
- 8) ____ are produced when DNA from another species is inserted into the genome of an organism, which then begins to produce the protein encoded on the recombinant DNA.
A. vectors B. plasmids C. gene gun D. transgenic organisms
- 9) Junk DNA is DNA which ____
A. is functionless B. does not code for proteins C. codes for harmful genes
- 10) Methylase enzyme adds ____ to adenine or cytosine bases within the recognition site of DNA
A. Hydroxyl group. B. Methyl group C. carboxylic group D. None of the previous
- 11) Creating new skin tissue for burn patients is an example of ____ cloning

