

قسم علم الحيوان



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF ZOOLOGY

Examination for juniors (third year) special zoology

| | | |
|---------------|------------------------|----------------------------|
| COURSE TITLE: | Invertebrate pathology | COURSE CODE: ZO3210 |
| DATE: | 31/5/2016 | TIME ALLOWED: TWO HOURS |
| TERM: | SECOND | TOTAL ASSESSMENT MARKS:100 |

الاسئلة فى ورقتين

First question (50 marks)

A- Define the following:

(6 Marks)

- 1- Disease
- 2- Host Susceptibility

B)- Write short notes on the following

(12 Marks)

- 1- Diagnosis of the OIE listed crustacean diseases or detection of their aetiological agents
- 2- The chain of infection.
- 3-Principles of Basic Infection Control

C)- Mention the main clinical signs for the following disease

(10 Marks)

- 1- Yellow head disease
- 2-Necrotising hepatopancreatitis

D) By digram only indicate

(4 Marks)

The reasons of loss by pathogen group in crustacean.

E-Put ✓ or X and correct the wrong one (s)

(9 Marks)

- 1- Septicemia is any abnormality in the tissue of an organism usually caused by disease or trauma. ()
- 2- Toxins are part of plant or animal origin, especially one produced by or derived from animal and acting as an antigen in the body ()
- 3-Asepsis free from or keeping away disease producing organism ()
- 4-The first step in immune process is the neglecting of micro-organisms ()
- 5- Blue spot syndrome virus causing risk to freshwater lobster. ()
- 6- No defense against viruses has to date been described in any detail ()

F-Complete

(9 Marks)

- 1- Shell disease is caused by which the shell. This forms the characteristic spot lesions
- 2-Clinical signs of..... disease in an infected animal is fungal growth on, parts of shell
- 3-Bleeding, technically known as or
- 4-is an abnormal accumulation of fluid in the interstitim, which are locations beneath the skin or in one or more cavities of the body.

Second question(50 marks)

A) Make a simple definition to the following (12 marks)

- 1) Pathology
- 2) retrovirus
- 3) gaping
- 4)histopathology
- 5)Aber disease
- 6) gastroenteritis virus

نظر خلف الصفحة

B) Complete the following: (18marks)

- 1- Bivalves are...feeding .so it bioaccumulate many.....from humans and vertebrates
- 2-Etiology means the ... of disease
- 3-General pathology could be divided into...branches, as.....,.....,..... pathology.
- 4-gill necrosis virus is a type oflike virus withstranded DNA that infectof mollusca withappearance on it, and could be detected by...
- 5- The OIE (international organization of animal health) listedtypes of Protozoan disease infect mollusca as.....
- 6- Cryptosporidiosis is a disease caused by....which infect bothand....
- 7-The origin of any disease isSo it is important to study non-human disease because 1.....2.....3.....
- 8- Hepatitis A virus (HAV) is a.....strand transmitted by.....route and could be detected by.....
- 9-is a type of molluscan infected bacteria from the second group and related to sewage contamination.

C) Put true(✓) or false(X) (10 marks)

- 1- Exposure of wound to contaminated sea water cause infection with *Vibrio cholera*
- 2- Rotavirus, norovirus, and poliovirus are types of human calicivirus which could associated with seafood borne illness
- 3-MSX is a disease caused by *Martellia sp*
- 4-*Listeria monocytogenesis* is a virus related with contamination in frozen or smoked mollusca.
- 5-Haplosporidiosis is a disease related to hemocytes of oyster and it called microcell disease.

D) Mention the pathogen caused the following disease: (10 marks)

Dermo Cholera Aber disease MSX CRYPTO

| | | |
|----------|--------------------|-----------------------|
| EXAMINER | PROF. Naglaa Geasa | ASS.PROF.Wesam Salama |
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Best Wishes



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Best Wishes

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | |
| | EXAMINATION FOR THIRD YEAR STUDENTS OF SPECIAL ZOOLOGY | | |
| | COURSE TITLE: | MOLECULAR EMBRYOLOGY | COURSE CODE: ZO 3212 |
| DATE: | JUNE, 2016 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 100 |
| | | TIME ALLOWED: 2 HOURS | |

Answer the following questions

First Question:

(Total 25 marks)

- 1- How does the cortical granules entails changes at the egg surface that prevent polyspermy??
- 2- Explain the mechanism of raising the calcium ions during fertilization?.
- 3- How does the fertilization potential serves as a fast block to polyspermy?

Second question:

(Total 25 marks)

- 1- All information for embryonic development is contained within the fertilized egg. How is this information interpreted to give rise an embryo?
- 2- The signals during developmental programe can be transmitted from one cell to another in main ways, mension these ways?
- 3 -Explain an experiment showing that nuclear transfer procedure to clone transgenic cows

Third question:

(Total 25 marks)

- 1- The nuclear transfere technique has been applied to several mammalian species, explain an experiment has been carried out with sheep?
- 2- Explain an experiment showing that nuclear activities are controlled by cytoplasmic environment ?
- 3- How we can clone the desired gene, and how we can establish transgenic mice by DNA microinjection.

Fourth question:

(Total 25 marks)

- 2- Explain an experiment showing that oocyte cytoplasm can re-program nuclei from kidney cells to express oocyte-specific proteins
- 3- Most blastomere cells (2, 4, 8, stage) are able to form a range of structures. Give an examble for only one stage.

With Best Wishes

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|-----------|-----------------------------|
| EXAMINERS | PROF. FOUAD AFIFI.ABOU-ZAID |
| | PROF. NABIL KMAL EL-FEKY |



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| DATE: 31/5/2016 | TERM: SECOND | TOTAL ASSESSMENT MARKS:100 | | TIME ALLOWED: TWO HOURS |

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EXAMINER

PROF. Naglaa Geasa

ASS.PROF.Wesam Salama

Best Wishes



Tanta University - Faculty of Science
Department of Chemistry

Final examination for 3rd level students in Transition Elements

Code No.: CH 3280

Majors: Botany, Microbiology
and Zoology

Term: 2nd term 2015/2016

Period: 1-3 PM

Date: Thursday, 2/6/2016

Total assessment: 50 marks

I. Complete the following sentences (16 marks)

1- The atomic volume of the first series of the transition metals with.....
increasing the atomic number until near the end of series because of
..... (2 marks)

2- The atomic volume of Sc group (group IIIB) increases regularly from top
to down because ofbut, in Ti group, the volume increases
regularly from Ti to Zr, then slightly increases from Zr to Hf because of the
lanthanide contraction which is defined
..... (3 marks)

3- Oxidation number is defined as
In the first series of transition elements, the maximum oxidation number
from Sc to Mn is equal to the sum of electrons of but after Mn; this
number abruptly decreases because of two factors:
..... (4 marks)

4- The colors of the transition metal compounds may arise from

1- 2- 3- (3 marks)

5- Metal cluster compounds are those that contain more than two atoms of
the same metal bonded together in a polygonal or polyhedral structures and
these compounds occur in elements ofof the d-block with
oxidation states..... Draw the structure of $[\text{Nb}_6\text{Cl}_{12}]^{2+}$ (4 marks)

II. Answer the following:**(12 marks)**

1- Calculate the spin-only magnetic moment (μ_s) and the spin-orbit magnetic moment (μ_{s+L}) for the free Ni^{2+} ion. Which of these values is in agreement with the measured value (μ_{eff}) for Ni^{2+} in $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ ($\mu_{\text{eff}} = 2.91 \text{ BM/Ni atom}$). Comment on the results.

(Atomic number of Ni = 28).

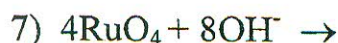
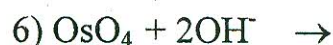
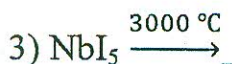
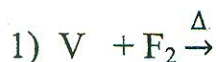
(4 marks)

2- Give a reason for each of the following:

i- The complex ion $[\text{Mn}(\text{CN})_6]^{4-}$ is deep red in color, while $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$ is pale violet.

(4 marks)

ii- NbF_4 is paramagnetic, while NbI_4 is diamagnetic in the solid state, though in both compounds Nb has a d^1 -configuration.

(4 marks)**III- Complete the following chemical equations:****(14 marks)****IV- Write short notes on Only Two of the following:****(8 marks)**


1- Kroll's method for extraction of titanium.

2- Penta oxides of vanadium group (V, Nb and Ta)

3- Describe Only Four properties of the lanthanides.

Good Luck

Examiner: Dr. Samir S. Kandil

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | | |
| | EXAMINATION FOR JUNIORS (THIRD YEAR) STUDENTS OF CHEMISTRY / ENTOMOLOGY | | | |
| | COURSE TITLE: | MEDICAL AND VETERINARY ENTOMOLOGY | COURSE CODE: EN 3240 | |
| DATE: | JUNE, 2016 | TERM: SECOND | TOTAL ASSESSMENT MARKS:150 | TIME ALLOWED: 2 HOURS |

PLEASE NOTE THE EXAM IS IN TWO (2) PAGES

- ANSWER THE FOLLOWING QUESTIONS

The First Question..... (30 Marks)

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

- 1) *Aedes aegypti* is the main vector of.....and.....
- 2) The causative organism of murine typhus is.....and is transmitted to humans by.....
- 3) In dwellings, cockroaches prefer.....
- 4) The presence of bed bugs in a dwelling can be recognized from.....
- 5) The kissing bugs are attracted to their hosts by.....
- 6) The eggs of *Anopheles* are characterized by.....and egg raft of *Culex* are characterized by.....
- 7) The is incriminated as the vector of the causative organism of Cholera.
- 8) During a blood meal, a malaria-infected female *Anopheles* mosquito inoculates stage into the human host.
- 9) Culicine larvae differ from those of *Anopheles* by.....
- 10) We can differentiate the female and male black fly by.....
- 11) The Sand fly, *Phlebotomus* sp., acts as a vector of two types of leishmaniasis; these areand.....
- 12) The aim of medical entomology is
- 13) The term kissing bug comes from the tendency of the bugs to feed on.....
- 14) The ceratopogonids are vectors of.....virus in wild and domestic animals.
- 15) The larvae of biting midges are found at.....

The Second Question..... (18 Marks)

Choose from between the brackets the correct answer and rewrite in your sheet answer.....(2 Marks Each)

- 1) *Simulium* sp. is the vector of the filarial worm.....
(*Loa loa* — *Onchocerca volvulus* — *Wuchereria bancrofti*).
- 2) *Pediculus humanus humanus* is the vector of.....
(*Rickettsia prowazekii* — *Rickettsia typhi* --- *Yersinia pestis*).
- 3) The sand flies associated with the transmission of *Leishmania braziliensis* are members of the genus
(*Sergentomyia* — *Phlebotomus* --- *Lutzomyia*).
- 4) Bartonellosis is transmitted by.....
(black flies --- sand flies --- mosquitoes).
- 5) The louse, *pediculus humanus*.....
(Transmits pediculosis to man --- Is not known to transmit diseases to man --- Transmits *Salmonella* infections to man).
- 6) The vector of *Yersinia pestis* that cause plague is.....
(*Xenopsylla cheopis* --- *Ctenocephalides canis* --- *Pulex irritans*)
- 7) Adult sand flies are active only during of the year.
(The colder months --- Warmer months — All seasons)
- 8) Long range attraction of black fly female is initiated by
(Visual stimuli -- Host odor -- Carbon dioxide).
- 9)harbor the food poisoning organism, *Salmonella*.
(Bed bugs --- Fleas --- Cockroaches)

The Third Question..... (40 Marks)

Indicate whether the following statements are true or false and correct the false(2 Marks Each)

- 1) Both males and females of Simuliidae are blood sucking of warm-blooded animals. ()
- 2) Members of the Psychodinae are annoying in the house. ()
- 3) *Cimex hemipterus* occur in the tropical region. ()
- 4) The culture of *spirochaete* in the fleas mid gut forms adhesive gelatinous body and this case called blocked flea. ()
- 5) The final host, or the definitive host, is the one in which the parasite reaches sexual maturity ()
- 6) Facultative parasites are free living insects that may live for a certain period in the vertebrate host ()



TANTA UNIVERSITY
FACULTY OF SCIENCE
ZOOLOGY DEPARTMENT

EXAMINATION FOR JUNIORS (THIRD YEAR) STUDENTS OF CHEMISTRY / ZOOLOGY

COURSE TITLE: ANIMAL ECOLOGY and BEHAVIOR COURSE CODE: : ZO 3244

DATE: 16 / 6 / 2016 TERM: SECOND TOTAL ASSESSMENT MARKS: 150 TIME ALLOWED: 2 HOURS

Part(I) :Animal Ecology(Total 75 marks)

الإمتحان في 3 صفات

Answer the following questions

Question (1) (57 marks)

A- Write short notes on the following :

- The joint change in number of resource and predator populations. (8 marks)
- Importance of predation in nature. (3 marks)
- Ecological succession. (5 marks)
- Types of food chain and links between them. (9 marks)
- Species diversity. (5 marks)

B- Describe an example of aquatic ecosystem and explain why phytoplankton is much more important than rooted vegetation in the production of basic food for aquatic ecosystem? (10 marks)

C- In a population size 1000 individuals if $b = 0.2$ and $d = 0.05$ Calculate the rate of change in population growth and population size? (5 marks)

D- What is a population? Describe the exponential and logistic growth forms with special reference to:- a) r- selection and K selection

b) Points at which natality and Mortality are equal. (12 marks)

(Question (2): Choose the correct answer (18 marks)

1-Scientists refer to a biological community and the a biotic parts of the environment

That affect the community as

- A) a habitat B)a species C) an ecosystem D)an ecological reserve

2- A mouse eats grain. A snake eats the mouse. An owl eats the snake. What type of Consumer is the snake?

- A) herbivore B)third-level consumer C)second-level consumer D) first-level consumer

3- What are consumers that eat dead and decaying organic matter?

- A) producer B) decomposer C) herbivore. D) carnivore

4- Which of the following indices is also known as the index of diversity?

- A) Flintstone's Index B) Jetson's Index
C) Simpson's Index D) None of these

5- _____occurs when one species resembles another that possess an antipredator defense.

- A) Predation B) Speciation C) Succession D) Mimicry

6- Climax communities are characterized by.....

- A) Slow rates of change B) stability C) tolerant species D) all of them

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- 7- The number of species in a particular community is known as
 A) Complexity B) species richness. C) the niche. D) species diversity.
- 8- Density-dependent factors include factors such as _____, while density-independent factors include factors such as _____.
 A) temperature; floods. B) temperature; disease. C) disease; parasites. D) competition; storms
- 9- In the equations describing population growth, K indicates the
 A) intrinsic rate of increase. B) carrying capacity
 C) number in the population D) death rate.
- 10- Exponential growth may be graphed (time versus population size) in a(n) shaped curve.
 A) S B) K C) C D) J
- 11- Predator/prey and parasite/host relationships are classically considered to be
 A) + + B) + - C) - 0 D) - -
- 12- The total amount of energy fixed by green plants, not including respiratory losses, is known as
 A) net productivity. B) lost energy. C) chemoautotrophic energy. D) gross productivity.
- 13- When $N_0 = 80$, $R_0 = 1.25$, then $G_2 = \dots\dots$
 A) 100 B) 125 C) 130 D) 156
- 14- There are many exceptions to the classic pyramids, but the pyramid of _____ may never be inverted.
 A) numbers B) biomass C) carnivores D) energy
- 15- The physical place where an organism lives is its niche.
 A) True B) False
- 16- When does stable population size occur?
 A) when natality and immigration are greater than mortality and emigration
 B) when mortality and emigration are greater than natality and immigration
 C) when there are no births or deaths
 D) when natality and immigration are equal to mortality and emigration
- 17- Logistic term becomes negative when $N > K$, then population size and it is Positive when $N < K$, then population size
 A) Decrease / increase B) increase / decrease C) both equal D) zero/ increase
- 18- They eat the remains of dead organism left by the consumer called
 A) scavengers B) omnivores C) herbivores D) carnivores

Part (II) Animal behavior (Total 75 marks)

Question (3) Answer the following questions:

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

- Movement whose direction is dependent on the comparison intensities of stimulation on bilateral sense organs called (klenotaxes..... tropotaxes.... telotaxes)
- Hygienic bees give an example for (territorial.... social....genetic control of) behavior.
- The change of behavior which takes place automatically with age called (imprinting maturation learning)
- Experience influences the development of behavior in (perceptual sharpening supernormal stimulus stimulus filtering).

- e. Rattle snake locate its pray by responding to (radiant heat ultra violet rays visual senses).

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

- a. The principle by which the sensory system of an animal responds to some stimuli in the environment but not to others called,one method we can find out what stimuli an animal responding to is
- b. The two kinds of behavioral responses which can become imprinted are and
- c. The animal alters its rate of movement, in random direction according to the intensity of stimulus in.....which subdivided into and
- d. The distinctive property of cultural behavior, is inherited by
- e. Courtship on guppies *Poeciliareticulata* gives an example for

3. Unlike the nervous system, hormones control the behavior over longer terms of days.
Comment **(Total:10 Marks)**

4. The ability to see and recognize shapes is a complex part of vision in animal. Explain with example **(Total: 10 Marks)**

Question (4)

1. A study of gastropod Pleurobranchia gives an example for the interaction between different kinds of behavioral goals. Discuss!!!! **(Total: 10 Marks)**

2. Demonstrate with experiment the advantage gained by associative learning in animal.

(Total:15Marks)

3. Illustrate using examples, how aggregation can benefit the individuals that comprise them. **(Total:10Marks)**

4. Adaptive behavior is indeed an essential part of animal equipment for survival. Using examples, discuss the statement. **(Total: 10 Marks)**

Best Wishes

| | | |
|-----------|------------------------------|--|
| EXAMINERS | Prof. Dr./ Mohamed A. Khalil | Prof. Dr./Prof. Dr. Hala M. Abdel-Latief |
| | Prof. Dr./Lamiaa A. Sharra | Dr. Basma A. Al-Assiuty |



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY

EXAMINATION FOR THIRD YEAR - STUDENTS OF CHEMISTRY

| | | | | |
|-----------------|--|-------------------|-----------------------------|-----------------------|
| COURSE TITLE: | | electro chemistry | | COURSE CODE : |
| JUN, 2016 | | TERM: SECOND | TOTAL ASSESSMENT MARKS: 150 | CH3206 |
| DATE: 16-6-2016 | | | | TIME ALLOWED: 2 HOURS |

Answer the following questions: 30 marks per each question (150 Marks)

1) Derive the current-potential relationship for electrode reaction ($A + e = B$) and sketch the $i - E$ curve, where A is only present. (30 Marks)

2) Draw the diagrams of the following (30 Marks)

- ECE electrode reaction with an example .
- Reversible cyclic voltammogram and indicates the $E_{1/2}$ on the graph .
- Two electrode polarographic cell and shows the advantages of DME.

- Show the difference between faradaic and non-faradaic current .
 - Mention the variables affecting the rate of an electrode reaction .
- Sketch a circuit of two electrode and three-electrode cells. (30 Marks)

4) Derive the relationship between electrode reaction rate and corrosion current (30 Marks)

5) a) Fill in the space on the followings (15 Marks)

1) Cyclic voltammetry involves the measurement of diffusion controlled at an electrode in which the is controlled .

2) Faradiac current in polarography is known as

3) Polarization resistance is equal to

4) Electrolysis rate is equal to


b) Draw the cyclic voltammogram in which the electrode product is consumed in a coupling chemical reaction (15 Marks)



Assume that D is not observed in any further electrochemical reaction .

EXAMINER

PROF. DR. M.M. GHONEIM AND PROF. DR. Y. I. MOHARRAM

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | |
| | EXAMINATION FOR (THIRD YEAR) STUDENTS OF CHEMESRY- ENTOMOLOGY | | |
| | COURSE TITLE: | Forensic Entomology | COURSE CODE: EN 3242 |
| DATE: | 16/6/2016 | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED: 2 HOURS |

الامتحان في اربع صفحات

Answer the following question

Section (A)

1. Complete the following sentences(10 marks, each2 marks)

- Forensic entomology is
- The symptoms of decay stage include
.....
- Casper's Dictum law says that.....
- d- Apeneumones* is.....
- Variables affecting insect succession pattern include
.....

2- Indicate whether the following statements are true or false

(5 marks, each one mark)

- A-fixed lividity stage occurs during 2-4 hours()
- The byproduct of decay (BOD) is recognized in post decay stage ()

c- The age of immature stage detected by the length of larvae ()

d- In the livor mortis stage the colour of the body change from red to green ()

e-Float stage is accompanied with the dead bodies in water ()

3- Write in details on the subfields of forensic entomology (15 marks)?

4- How to use insect in crime investigations? (15 marks).


5-write on the first and second wave of carrion decomposers? (15 marks)

Section (B)

Answer the following questions. (60 marks)

- 1- Discuss how to estimate the time of death (PMI) with forensic Pathology and Entomology. (15 marks)
- 2- Mention the factors affecting on the insects succession pattern. (15 marks)
- 3- Define the following:
 - A- Accumulated heat. B- lower and upper developmental threshold. C- calculate the ADD for insect, if the

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|  | TANTA UNIVERSITY. FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | |
| | FINAL EXAMINATION FOR FORTH THIRD STUDENT OF SPECIAL ZOOLOGY | | |
| | COURSE TITLE: | PHYSIOLOGY I | COURSE CODE: ZO 3204 |
| | DATE: 16 JUNE, 2016 | TOTAL ASSESMENT MARKS: 100 | TIME ALLOWED: 2 HOURS |

Part I: (50 points)

1- Give a short note on:

- A) The three barriers that obstruct the reversal of glycolysis.
- B) Fate of pyruvate in the cell.
- C) Relation between biological oxidation to energy release.

2- Explain this fact:

The liver serves as receiving + manufacturing storing and distributing center for glucose.

3- Calculate:

- A) The energetics of fatty acid oxidation with (14 carbon atoms)
- B) The amount of ATP generated by oxidation of 1 mole of glucose anaerobically.

Part II: (50 points)

A) Give short accounts on the following : (30 marks)

- 1. Carboxy peptidase enzyme.
- 2. Feeding method of hydra.
- 3. Active transport.
- 4. Intestinal Erepsin.
- 5. Absorption of carbohydrates.
- 6. Integral and peripheral proteins.


B) Mention the function of: (10 marks)

- 1. Bile salts.
- 2. Hcl acid.

C) Compare between phagocytosis and pinocytosis. (10 marks)

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| Examiners: | Prof. Dr. Zeinab Attiah | Prof. Dr. Somaia Zaki |
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Good luck ☺

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|  1969 | TANTA UNIVERSITY FACULTY OF SCIENCE ZOOLOGY DEPARTMENT | | |
| | EXAMINATION FOR JUNIORS (THIRD YEAR) STUDENTS OF ZOOLOGY | | |
| | COURSE TITLE: | ANIMAL ECOLOGY and BEHAVIOR | COURSE CODE: : ZO 3206 |
| DATE: 19 / 6 / 2016 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED: 2 HOURS |

Part (A) : Animal Ecology (Total 75 marks)

الامتحان في ثلاث صفحات

Answer the following questions

Question (I)

- 1- In the stationary phase, there are four different pattern of population fluctuation. Describe them. (8 marks)
- 2- Compare between each two of the following: r- selection and k- selection, fertility & fecundity, absolute & relative population density. Species diversity and species richness. Uniform and clumped distribution (15 marks)
- 3- Write short notes on :
-Similarities and differences between exponential and logistic population growth. (5marks)

-Predator-prey population fluctuations (neutral stability) in Lotka-Volterra model. (5 marks)
- 4- Given that $K=600$ $r=0.2$ $N=(0,100,200,300,400,500,600)$ Calculate the change in population density? (7 marks)

Question(II) : Choose the correct answer (10 marks)

- 1- Which of the following is a way of counting the number of organisms in a small area to estimate the number of organisms in a much larger area?
A) Communicating B) sampling C) organizing D) banding
- 2- Scientists often estimate population sizes in ecosystems by marking off a specific area using a
A) community B) triangle C) quadrat D) Niche
- 3- The space where an organism lives and the role an organism plays within its ecosystem is referred to as a
A) Sampling B) Community C) Population D) Niche
- 4- The community of living organisms with non-living organisms as they exist in their natural, undisturbed environment is known as _____.
A) carbons B) decomposition C) biota D) ecosystem
- 5- The first species to enter a new habitat are:
A) pioneer species. B) parasitic species. C) climax species. D) aberrant species
- 6- A negative rate of growth means that:
a) the population is declining b) the population is increasing
c) the population is logistic d) zero population growth has been reached
- 7- A/An _____ is defined as all the organisms within an area belonging to the same species.

A) Ecosystem B) biosphere C) population D) community

8- The exponential growth curve (for many pest species) is J-shaped.

A) True B) False

9- The difference between the logistic and the exponential curves is the inclusion of a limiting
Fact that takes into account

A) r. B) K. C) t. D) N.

10- A place where an organism lives or can be found is the

A) Niche B) habitat C) biome D) biosphere

Question (III)

a) Complete the following sentences: (7 marks)

- 1-Gross primary productivity is.....while net primary productivity is.....
- 2-for all organisms there must be A.....of energy and Aof usable energy
- 3-.....and..... are the main groups of decomposers.
- 4- Organic compounds, form a link between andof the system.
- 5-The biotic components of an ecosystem can be classified according to their mode of energy acquisition. Into..... and
- 6-..... are bacteria that oxidize reduced inorganic substances and produce complex organic compounds.

b) Choose the correct answer from the brackets: : (8 marks)

- 1) Nitrifying bacteria in the soil are considered (chemoautotrophs- Photoautotrophs - Heterotrophs).
- 2) (chemoautotrophs- Photoautotrophs -Heterotrophs) fix energy from the sun and store it in complex organic compounds.
- 3) (gravitational energy- chemical energy- Solar energy) provides practically all the energy for ecosystems.
- 4) (Decomposers- Detritivores—Autotrophs) invertebrates that feed on organic wastes and dead organisms from all trophic level.
- 5) (Granivores- Carnivores Omnivores) are Specialized seed-eaters.
- 6) The combined portions of Earth in which all living things exist is called the (biome- biosphere- Atmosphere)
- 7) All the interconnected feeding relationships in an ecosystem make up a food(chain- web-network).
- 8) an organism's specific environment, with characteristic abiotic and biotic factors(habitat-ecosystem-community)

c) Give an account on: (10 marks)

Bioaccumulation-Nitrogen fixation- Assimilation- denitrification.

Part (B) Animal behavior (Total 75 marks) Answer the following questions:

Question IV

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

- a. Insect responds to poppy because it reflect (infrared rays.... ultraviolet rays..... the red colour)
- b. Orientation to one stimulus as if it was a goal called (klenotaxes..... tropotaxes.... telotaxes)
- c. The change of behavior which takes place automatically with age called (imprinting maturation learning)
- d. Experience influences the development of behavior in (perceptual sharpening supernormal stimulus stimulus filtering).
- e. Rattle snake locate its pray by responding to (radiant heat ultra violet rays visual senses).

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

- a. The animal alters its rate of movement, in random direction according to the intensity of stimulus in.....which subdivided into and
- b. Sounds and echo system are.....stimuli.
- c. Unlike the nervous system, control the behavior over longer terms of days.
- d. The principle by which the sensory system of an animal responds to some stimuli in the environment but not to others called,one method we can find out what stimuli an animal responding to is
- e. The two kinds of behavioral responses which can become imprinted are and

3. The distinctive property of cultural behavior, is inherited by imitation. Explain with example.

(Total: 10 Marks)

Question (V)

1. A study of gastropod *Pleurobranchia* gives an example for interaction between different kinds of behavioral goal. Discuss!!!!

(Total: 10 Marks)

2. Demonstrate with experiment the non-associative learning in animal.

(Total: 15 Marks)

3. Illustrate using examples, territorial behavior in insects.


(Total: 10 Marks)

4. Demonstrate with example, the genetic control of animal behavior.

(Total: 10Marks)

Good Luck

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|-----------|---------------------------------------|------------------------------|
| EXAMINERS | Prof. Dr./ Abdel-Naeim I. Al- Assiuty | Prof. Dr./ Ensaf A. El-Gayar |
| | Prof. Dr. Hala M. El-Latief | Prof. Dr./ Lamiaa A. Sharra |

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|---|--|----------------------------|-----------------------------|-----------------------|
|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | | |
| | EXAM FOR (3 RD YEAR) STUDENTS OF CHEMISTRY/ENTOMOLOGY | | | |
| | COURSE TITLE: | INSECT POPULATION GENETICS | | COURSE CODE: EN 3244 |
| DATE | 21 ST JUNE, 2016 | TERM:SECOND | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED: 2 HOURS |

Answer the following questions:

Part 1

Q1. Fill in the blanks with the appropriate words (27 marks):

- 1.1. A large population may be composed of smaller groups called
- 1.2. SNPs are the smallest type of and the most common in a population.
- 1.3. The chi square test can determine if observed and data are in agreement.
- 1.4. Mutations involve changes in, chromosome structure, and/or chromosome number.
- 1.5. Genetic drift usually results either in the loss of an allele or in the population.
- 1.6. Macroevolution
- 1.7. is the progeny of single mated females.
- 1.8. Random genetic drift is the deviation in genetic variation due to
- 1.9. In natural selection, the environment selects the individuals whose traits have

Q2. State whether the statements are true or false and correct the false one (18 marks):

- 2.1. In population genetics, the focus shifts away from the population toward the individual.
- 2.2. Microevolution describes changes in a population's gene pool from generation to generation.
- 2.3. Nonsense mutations involve a change from a normal codon to a stop codon.
- 2.4. The rate of genetic drift depends on the population size and on the initial allele frequencies.
- 2.5. A few individuals may migrate from a large continental population and become the founders of an island population.
- 2.6. Negative assortative mating occurs when similar individuals choose each other as mates.
- 2.7. Missense mutations are base substitutions in which an amino acid does not change.
- 2.8. The population with the bottleneck may regain its original size, but with less genetic variation.
- 2.9. The inbreeding depression is to produce heterozygous that are more fit, thereby decreasing the reproductive success of the population.

Q3. Choose the correct answer for each statement (18 marks):

- 3.1. The migration may likely alter the allele frequencies in the Population.
a. recipient. b. donor. c. conglomerate.
- 3.2. In nature, a population can be reduced dramatically in size by
a. Earthquakes. b. floods. c. drought. d. all of these.
- 3.3. Resistance of insects to pesticides, such as DDT is an example for selection.
a. Directional. b. Disruptive. c. Stabilizing. d. Negative.
- 3.4. In natural populations, inbreeding the mean fitness of the population.
a. decrease. b. increase. c. stabilize.
- 3.5. The mating of two genetically different individuals, is called
a. Inbreeding. b. outbreeding.
- 3.6. In automated microsatellite analysis, the individual with heterozygous alleles has
a. One peak b. two peaks

- 3.7. Microsatellite loci are
 a. 2-4 pb. b. 5-200 rpts. c. homogenous array. d. all of these.
- 3.8. Mutation in non-coding regions may alter the
 a. gene expression. b. amino acids c. protein.
- 3.9. Polymerase chain reaction (PCR)microsatellites, before electrophoresis.
 a. amplifies b. cuts. c. visualizes.

Q4. Answer the following Question (12 marks)

Let's suppose that pigmentation in a species of insect is controlled by a single gene existing in two alleles, D for dark and d for light. The heterozygote Dd is intermediate in color. In a heterogeneous environment, the allele frequencies are $D = 0.7$ and $d = 0.3$. During a hurricane, a group of insects is blown to a completely sunny area. In this environment, the fitness values are $DD = 0.3$, $Dd = 0.7$, and $dd = 1.0$. Calculate the allele frequencies in the next generation under directional selection.

Part 2

Q5: Define and Explain the following briefly:(30 marks)

1. Interphase of cell cycle
2. Goals of population genetics
3. How crossing over and independent assortment generate genetic variation
4. The four main evolutionary processes
5. Speciation
6. Impact of migration on population diversity

Q6: Complete the following sentences: (20 marks)

1. The ----- is the position of a gene, and ----- is the alternative form of a gene.
2. ----- is the nuclear division, and the ----- is the division of cytoplasm.
3. The composite of an organism's observable characteristics or traits is -----, and the inherited instructions which the organism carries within its genetic code is the -----.
4. The processes of determining differences in the genetic make-up (genotype) of an individual is -----, and the two or more clearly different phenotypes exist in the same population of a species is -----.
5. The fundamental prerequisite for evolution by natural selection is called -----, and when we count the number of M or N alleles and divide by the total number of individuals this gives -----.


Q7: True (✓) or False (X) (write the correct answer if false): (25 marks)

1. Diploid organisms have 4 copies of each gene on each chromosome
2. If the alleles are different, they and the organism are homozygotes
3. A population is just a group of individuals living in the same environment
4. Hardy-Weinberg law predicts how chromosomes will be transmitted from generation to generation
5. Genetic drift is mating in a population in proportion to their allelic frequencies

With our best wishes

Examiners: Prof. Dr. Elsayed Salim & Dr. Wesam Meshrif

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| | EXAM FOR (3 RD YEAR) STUDENTS OF CHEMISTRY/ENTOMOLOGY | | | |
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| DATE | 21 ST JUNE, 2016 | TERM:SECOND | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED: 2 HOURS |

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5. Genetic drift is mating in a population in proportion to their allelic frequencies

With our best wishes

Examiners: Prof. Dr. Elsayed Salim & Dr. Wesam Meshrif

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY | | | |
| | EXAMINATION FOR JUNIORS (THIRD YEAR) STUDENTS OF SPECIAL ZOOLOGY | | | |
| | COURSE TITLE: | IMMUNOPARASITOLOGY AND CONTROL | COURSE CODE: ZO 3208 | |
| DATE: | JUNE, 2016 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 100 | TIME ALLOWED: 2 HOURS |

PLEASE NOTE THE EXAM IS IN TWO (2) PAGES

-ANSWER THE FOLLOWING QUESTIONS

The First Question..... (25 Marks)

- I- Construct a table to list the anatomical barriers of innate immunity and judge the role of each as a defense against infectious disease (10 Marks)
- II- Explain how parasites modify their antigens to make them inaccessible to the host immune response.....(15 Marks)

The Second Question..... (20 Marks)

- I- In the intestine and tissues of hosts, multiple TH2-type effector mechanisms come into play in immunity to helminthes. Clarify with a diagram these mechanisms (10 Marks)
- II- Explain with examples and diagrams whenever possible the main evasion mechanisms developed by parasites to inhibit the immune factors..... (10 Marks)

The Third Question..... (20 Marks)

- I- Describe factors contribute to the high prevalence and widespread distribution of malaria (10 Marks)
- II- Discuss the effective immunoglobulins in gastrointestinal GI nematodes with specific reference to their natural role in immunity?..... (10 Marks)

The Fourth Question..... (25 Marks)

- I- Mention the source of antigens and targeted shared in all life cycle stages of schistosomiasis (10 Marks)
- II- "Intestine is a good series of nematodes habitats" How? (5 Marks)
- III- Give the evidences of the T cell dependent role in worm expulsion..... (10 Marks)

The Fifth Question..... (10 Marks)

- III- Based upon what you have learned in immunoparasitology, choose the correct answer and rewrite it in your answer sheet..... (10 Marks, 1 Mark each)
 1. which leukocyte would you expect to Kill certain parasites?
 - a) Natural killer cells b) Lymphocytes c) Eosinophils d) Neutrophils
 2. *Plasmodium* ookinetes escape the insect immune mechanisms by development in serosal membrane to be beyond reach of insect hemocytes by a process called
 - a) Sequestration of Parasite b) Antigenic Modification c) Antigenic disguise d)Antigenic Mimicry

3. *Schistosoma* spp. produce that combine with their antigens making them unavailable for antibodies involved in ADCC.
a) Degradative enzymes b) Blocking antibodies c) Macrophage inhibitory factor d) Anti-coagulants
4. During entry of the host cell, *Leishmania* spp. use
a) Receptors on erythrocyte b) Coat of host molecules c) Complement receptor d) All of these
5. As innate immune system cell types, neutrophils functions are.....
a) Phagocytosis and intracellular killing b) Release of histamine and other mediators
c) Inflammation and tissue damage d) Both a and c
6. The mast cells are very similar in appearance and function to the basophiles but they differ in.....
a) Mast cells are tissue resident, while basophils are found in the blood
b) Mast cells are blood resident, while basophils are found in the tissue
7. Antigen source of gastrointestinal nematodes are.....
a) Cuticle b) Mouth, anus and cloaca c) Female opening and excretory pores
d) Sensory structure. e) a, b, c, d. f) b, c, d g) a, c, d
8. The antibody locally produced from plasma cells in lamina propria and enter lumen from blood vessel after inflammation and enhance resistance to parasite but broken by proteolytic enzyme except Fab fragment is.....
a) IgM b) IgA c) IgG d) IgE
9. Opsonization is one of the basic functions of complement characterized by
a) Attracting macrophages and neutrophils b) Enhancing phagocytosis of antigens.
c) Clustering and binding of pathogens together d) Rupturing membranes of foreign cells.
10. Macrophage antibody mediator specific dependent mechanism occurred by.....
a) Anti-parasite IgE, IgG arms the macrophage ,adhere and release enzyme onto the tegument
b) Activation of T cell by released IF γ from antigen-stimulate T cell to release of nitric oxide .
c) Both of them

BEST WISHES

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|-----------|------------------------|----------------------------|
| EXAMINERS | PROF. IBRAHIM B. HELAL | PROF. MOSTAFA H. ELMEHLAWY |
|-----------|------------------------|----------------------------|