Mansoura University
Faculty of Science
Botany Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة ـ مصر

Final Examination in Botany
Second Term: Jan. 2015

Educational Year: Third Level	Program (Branch): Environmental sciences
Subject: Bot (322)	Course: Plant Phytogeography and Flora of Egypt.
Time: 2 hrs Date: 31/12/2015	Full mark: 60 Question mark: 20

Answer the following questions:

Q1: Discuss in detail each of the following:-
1- Ecosystems of Mariut Area and its flora. **(7 Marks)**
2- Halophytic vegetation of Kharga and Dakhla Oases. **(7 Marks)**
3- Characteristics of Egyptian flora. **(6 Marks)**

Q2: A. Answer the following:-
(i) Draw and write on the phytogeographical regions of the Egypt. **(2 Marks)**
(ii) Weed flora of the Nile Delta. **(5 Marks)**
(iii) Types of hydrophytes in fresh or brackish water habitats. **(3 Marks)**

B- B. Explain the effect of the following on the plant life:-
1) Wind. **(4 Marks)**
2) Soil texture. **(3 Marks)**
3) Wadis (Valleys). **(3 Marks)**

Q3: 3- Give a brief account on:- (20 marks)
1) Animal dispersal. **(7 Marks)**
2) Barriers. **(7 Marks)**
3) Types of plant distribution. **(6 Marks)**

Examiners: **Dr. Prof. Dr. Mohamed A. Abu Ziada**   **Prof. Dr. El-Sayed F. El Halawany**

Answer All the following Questions:

Question 1: Answer the following Questions by completing the sentences: (16 mark)

A- Circulatory system in fishes is described as ----------- type, Heart has --------- chambers, ------------ which preceded by ----------- and -------- which followed by ----------- .

B- The optimum salinity for growth for fresh water fishes vary from ------to -------- ppt, while optimum alkalinity for fresh water fishes should be between -------- to ------- mg/L.

C- --------- is the locomotory organ in fishes , and two type of them are found which are ----- --------------- and -------------- .

D- Scales of fishes are known as -------------- of fish, used for ---------- also used for ---------- -------- through presence of -------------- on the surface.

E- Fishes have efficient respiratory system represented by ------------ which covered by ------ ------- which present in ----------- fishes only and it's function is ----------- .

F- Structure of kidney differ according to type of fish, In fresh water fishes ---------- number of --------- are found for------------, while in marine water fishes -------------- number are found due to----------- .

G- Toxic gases as ---------, ---------, -------- in very low concentration can kill fish.

H- Cuticle has antipathogenic activity through containing ----------, -------and---------- .

Question 2:

A- **Explain Mechanism of blood circulation in fishes.** **(5 marks)**

B- **The most common factors controlling health and growth of fish (Dissolved Oxygen (DO) and Toxic gases).**
Give a brief account on this two factors only). **(10 marks)**

Question 3: Define each of the following : (14 marks)

A- Mucus gland. B- Pharyngeal teeth. C- Lateral line.
D- Stenohaline. E- Stocking density. F- Phytoplankton.
G- Buccal incubation.

Question 4:

A- **Skin of fishes act as primary protection against environment, briefly mention Structure and Function of the Skin.** **(10 marks)**

B- **Life in water differ than life in air, this require efficient respiratory system for fishes. Explain the statement** **(10marks)**

Examiner: Dr.Dina Elbadry
With my best wishes

جامعة المنصورة – كلية العلوم

قسم الرياضيات

التاريخ :18 / 1 / 2016 م

الدرجة الكلية : 80

الزمن : ساعتان

امتحان دور يناير 2016 م

المستوى : الثالث

اسم المقرر : احصاء حيوى

كـود المادة : ر 301

برامج: فيزياء حيوى- ميكروبيولوجى - كيمياء و حيوان - كيمياء و نبات - علوم بيئة

Answer the following questions:

[Q1] a- Compute the Pearson's correlation coefficient r for the following data. Explain the reason for this value of r. (10 Marks)

x	1	2	3	4	5
y	3	5	7	9	11

b- Let X be the number of heads when a coin is tossed three times. (12 Marks)

Find i) The cumulative distribution function $F(x)$ ii) $E(2X+1)$ and $Var(3X+5)$

c- If the average number of visitors to a web server per minute is 6 . What is the probability that (8 Marks)

i) The number of visitors in one minute will be less than two ?

ii) There are exactly two visitors in 30 seconds ?

[Q2]a- The heights of 1000 students in a certain college are normally distributed with mean 68 inches and standard deviation 3 inches. How many of these students would you expect to have heights: i) More than 64 inches ii) Between 67 and 71 inches.

($\Phi(1.33)=0.908$, $\Phi(-1.33)=0.092$, $\Phi(1)=0.841$, $\Phi(-0.33)=0.371$) (10 Marks)

b- The contents of seven similar containers of sulfuric acid are 9.8 , 10.2 , 10.4 , 9.8 , 10.0 , 10.2 , 9.6 liters. Find 95 % confidence interval for the population mean μ , assuming the population is normally distributed.

($t_{(0.025, 6)} = 2.447$, $Z_{0.025} = 1.96$) (15 Marks)

[Q3]a- The following table shows the weights (in kilogram) of 60 children (18 Marks)

weight	9.5 –19.5	19.5 –29.5	29.5– 39.5	39.5 –49.5	49.5– 59.5
frequency	5	10	18	20	7

Find i) The sample mode by two different methods. ii) The sample median.

 iii) Graph the cumulative frequency and deduce the median from it.

b- If we choose randomly two tubes in succession from a shipment of 86 tubes of which 12 are defective. What is the probability that both tubes will be defective? (7 Marks)

مع أطيب التمنيات بالنجاح د. فاتن شيحه – د. عبد الفتاح مصطفى – د. محمد عبدالرحمن

Answer all the following questions:

Q.1

A-Complete the following sentences: (15 marks)

1-Niche of an organism is classified into----------and---------according to absence and presence of--------and----------.

2-The small parasitic community is threatened by--------, ------- and-------

3-The food relation from grass——>deer——>tiger——>decomposer is called---------, where each step represents ----------.

4-Abiotic factors of the environment influence-------- ,--------- and--------.

5-Sea anemone is considered as-----------while-------are considered as microfauna.

6-Mating and offspring is an ------------relationship.

B-It was expected that world temperature increase between **2-8°C** over the current century. **Discuss the consequences of this.**   (5 marks)

Q.2

A-Choose from A the suitable definition to B: (5 marks)

A	B
1-The natural place for occurrence and growth of individuals.	-Species intensity
2-The mean number of an organism per an environmental patch.	-The habitat
3-Individuals of different species inhabiting the same environment.	-Species prevalence
4-The organism and non-living factors of the environment in a definite area.	-The population
5-Individuals of a particular species live in a definite habitat.	-The ecosystem
	-The community

B-Mention When does a population reach the carrying capacity of the environment? and **How to calculate** the rate of population growth?   (5 marks)

Q.3

A-Choose the correct answer: (10marks)

1-The green house effect on the earth is due to--------
a)increase in atmospheric moisture
b)harmful ultraviolet rays
c)ordinary ultraviolet rays
d)temperature preservation due to CO2 in atmosphere.

2- Which of the followings are biotic factors that affect organization of communities?-------
a)wind&temperature   b)competition& predation   c)a&b   d)O2 levels

3-The term ecology deals with all the following levels of organization **except**---------
a)community   b)ecosystem   c)cell structure   d)population

4-The food web is concerned with the energy flow through the--------
a)population   b)community   c)individuals   d)biosphere

5-*Triturus sp.*(Newt) is---------species.
a)herbivorous   b)carnivorous   c)omnivorous   d)voracious

6-The cycle of --------is one of the geochemical cycles.
a)carbon   b)nitrogen   c)phosphorous   d)sulfur

7-Fluctuation in populations at both time and place is known as--------
a)population dispersion   b)population density
c)population regulation   d)population dynamics

8-Interspecific relationship refers to the correlation between individuals of the -----------
species.
a)same   b)sympatric   c)irregular   d)a & b

9-In nitrogen cycle, denitrification include reduction of nitrate ions into----------
a)dinitrogen oxides   b)nitrogen   c)nitrogen dioxide   d)a ,b &c

10-Organism decaying produces-------in absence of oxygen and -------- in presence of oxygen
a)CO2 &CH4   b)CO &CH2   c)CaCO3&NH4   d)NO3&NH4

B-Discuss briefly what do you know about Eltonian pyramids?   **(5 marks)**
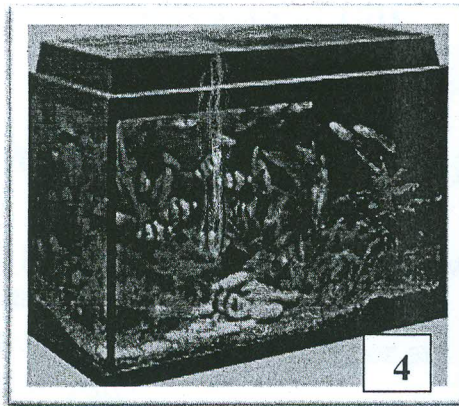

Q.4

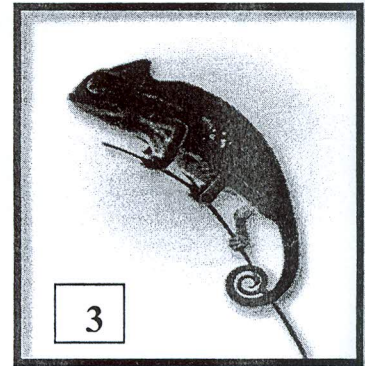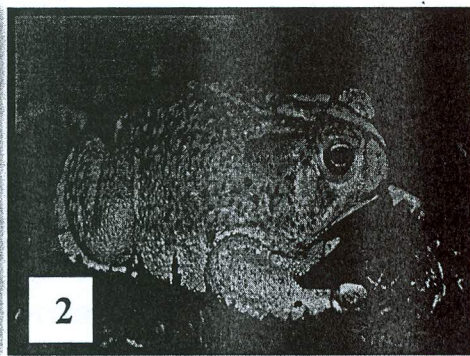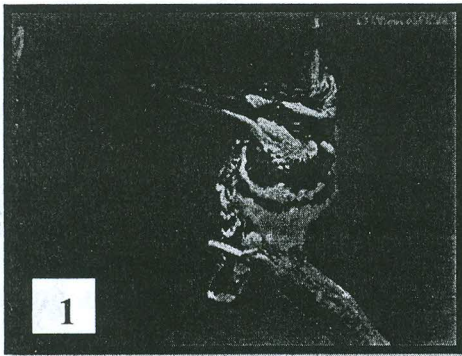**A-Explain the followings:**   **(10 marks)**

1-Although *Malapterurus electricus* is nocturnal, it is most active for 4-5 hours after sunset

2-In phosphorus cycle, why plants obtain soil phosphorus in different forms?

3-Presence of symbiotic bacteria in the rumen of cattle.

4-Why sea horses are endangered?

5-The importance of frogs in different ecosystems.

B-Illustrate if the following pictures represent adaptation or acclimation and mention the type of adaptation.   **(5 marks)**

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Final Examination in Botany
First Term: Jan. 2016

Educational Year: Third Level   **Program (Branch): Environmental Sciences**
Subject: ES (321)   **Course(s): Molecular Biology and Biotechnology**
Time: 2 h   **Date: 28 / 1 /2016**   **Total Marks: 60 marks**

Q1: Answer 4 only of the following using the instructions between brackets: (16 Marks)

1- Genetic engineering map   (Draw only)

2- Nested PCR   (Draw only)

3- Types of RNA (Discuss only)

4- Nucleosomes   (Discuss)

5- Polymerases (Discuss only)

Q2: A- Choose the correct answer of 10 only (one mark/each):

1. What are the three basic steps of conventional PCR?
    a. Denature, anneal, & strand displacement   c. Denature, anneal & extension
    b. Strand displacement, synthesis & release   d. Reverse-transcription, anneal & extend
2. RNA is copied into complementary DNA (cDNA) by:
    a. Taq DNA polymerase   c. RNA polymerase II
    b. Reverse transcriptase   d. Uracil-N-Glycosylase
3. Which of the following is an advantage of nested PCR (nPCR)?
    a. Provides a quantitative assessment of initial starting copy number
    b. Second round PCR products can be a source of laboratory contamination
    c. Is less time consuming than single round conventional PCR
    d. Typically has high sensitivity and specificity
4. Which is not a property of real-time PCR assays?
    a. Incorporate dyes that bind double-stranded DNA
    b. Incorporate an internal hydrolysis probe
    c. Be performed at single temperature with no specialized instrumentation required
    d. Be interpreted as a plus / minus result or as a quantitative result
5. RNA is highly stable and can be frozen and thawed many times without degrading.
    a. True   b. False
6. Which of the following is a character of histones?
    a. are special highly conserved proteins   c. are positively charged proteins that bind to DNA
    b. are divided into 5 classes   d. all of the above
7. Which of the following is not a character of chromosomes?
    a. Made up of nucleosomes   c. Carry genes
    b. Segregated through division   d. Diploid in normal gametes
8. The traits that produce by the genotype are called the phylogeny
    a. True   b. False

9. The case in which a mutation in one gene masks the effect of another gene is called
   a. Dominance
   b. Epistasis
   c. Equilibrium
   d. Heterosis
10. Which of the following is a step in gene cloning
    a. Cutting of DNA
    b. Isolation of DNA
    c. Joining DNA
    d. All of the above
11. Genetic information is expressed through the transfer of information from.
    a. DNA to RNA to DNA
    b. RNA to protein to DNA
    c. Protein to RNA to DNA
    d. DNA to RNA to protein

Q2: B- Correct the following sentences: (10 marks)

1- Valves are used to measure the weight of the bioreactor.
2- Particle bombardment involves transfer of DNA under electric shock.
3- Roof-top farming refers to the cultivation of plants in complete nutrient solutions.
4- Spargers are needed in the bioreactor to control pressure inside the tank.
5- The cell theory stated that a single cell is able to divide and produce a whole plant.
6- Schwann is regarded as the father of plant tissue culture.
7- The term biodegradable means that a substance is able to be broken down into simpler substances.
8- An agitator is an obstruction on the side of the vessel that generates turbulence in the flow of the culture.
9- Freezing is long-term conservation method in liquid nitrogen (−196 °C) in which cell division and metabolic and biochemical processes are arrested.
10- Polylactide is used in the making of petroleum plastics.

Q3: Answer the following questions: (20 marks, 5 marks each)

1- What is meant by organic farming? What are the advantages and disadvantages of using organic farming?
2- What is a bioreactor? Differentiate between the types of bioreactors.
3- Write on the processes by which soybeans are used in industry.
4- What is the role of *in-vitro* regeneration in multiplication of medicinal plants?

Best Wishes

Dr. Ashraf Elsayed   Dr. Heba M. M. Abdel-Aziz