

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



جامعة المنصورة  
كلية العلوم  
قسم النبات  
المنصورة - مصر

**Final Examination in Botany**  
**First Term: Jan. 2011**

**Educational Year: Third Level**

**Program (Branch): Biology**

**Subject: ES(321)**

**Course(s): Molecular biology & biotechnology**

**Time: 2 hrs**

**Date: 16 / 01 / 2012**

**Full mark: 60**

**Question mark: 20**

**Answer the following questions:**

**Q1.**

**(20 mark)**

**A: Define the following terms: (6 mark)**

Gene, plasmid, gene knockout, histone, nucleosome and its composition, and DNA ligase.

**B: Describe of the following: (14 mark)**

- i- General steps of gene cloning. **(1.5 mark)**
- ii- General gene structure in prokaryotes and eukaryotes. **(3 mark)**
- iii- Essential feature of gene cloning plasmids. **(1.5 mark)**
- iv- Main differences in transcription between prokaryotes and eukaryotes. **(3 mark)**
- v- ☐ based insertion and replacement vectors. **(2 mark)**
- vi- Only one method of getting recombinant DNA into host cells. **(1.5 mark)**
- vii- The use of X-gal for selection of recombinant DNA of interest. **(1.5 mark)**

**Q2.**

**(20 mark, 10 mark each)**

**A:** Restriction enzymes represent one of the basic tools for molecular biologists. Write briefly about these enzymes indicating their definition, types, naming, features (specificity, activity, types of formed DNA ends) and importance.

**B:** In eukaryotes, gene cloning can be initiated from either genomic DNA or mRNA. Describe, in details, each of these cloning strategies.

**Q3.**

**(20 mark)**

From your scientific point of view, discuss biotechnology, biomolecules and development of biotechnology.

**Best wishes**



Mansoura University  
Faculty of Science  
Zoology Department  
Date: 9/1/2012  
Time: 2 hr



Academic year: 3<sup>rd</sup> year  
Program: Ecology  
Subject: Biotic association  
Full Mark: 60 Marks

Answer all the following Questions:

I- Complete the following sentences:

[20 Marks]

- Cannibalism, another form of ....., resulting from ....., where ..... attack ..... of their .....
- Parasite is the partner that ..... or ..... & ..... The parasite should be ....., ..... & ..... the other partner
- Mutualism is interspecific B.A. in which both partners ..... In some cases ....., is ....., ..... and ..... than the ..... & is defined as ..... Mutualism divided into ..... groups, ..... and .....

II-1. Mark (✓) on right sentences and correct the false one.

[10 Marks]

- Mutualism considered as true symbiosis.
- In commensalism the host is injured by the "C".
- Metabolic interaction occurs in predatism.
- In parasitism the victim is killed as soon as the 1<sup>st</sup> attack occurs.
- By reaching 2 weeks age, a worker begins, building and repairing cells.

2. Mention the scientific expression for the following statements. [10 Marks]

- Both partners live separate from each other the "H" offers it's "P" food only.
- The host is necessary for the "P" to complete it's life cycle.
- A predator can usually live on 2 or more prey spp.
- In the cases where the host acts as source of food only to it's parasite, both partners live separate from each other.
- Individuals of the same sp. have similar biotic requirements.
- A beneficial intra specific B.A., It is well exhibited social insects, where the population is distinguished into castes.
- Abiotic association between 2 partners of different spp., the 1<sup>st</sup> partner benefit from the host without causing injury to it.
- A picture case of benign endoparasitism among mammals.
- Immediately, after emergence, from the cocoon, a worker cleans her cells.
- An interspecific B: A. in which both partners benefit from each other.

III- Write an essay on an economic insect.

Best wishes

Prof. Dr. Ahmed Ebib  
Dr. Hoda Salem

Prof. Dr. Hoda A. Abd El-Haseb  
Dr. Heba Allah Abd El-Mageed



الأسئلة - على أساس (ع ب ٣٠٣) بيولوجيا بحرية

Mansoura University  
Faculty of Science  
Zoology Department  
El- Mansoura, Egypt  
Full Mark: 60 Marks  
Program: 303 ع ب



First Term Examination  
Educational year: Third Year  
Time Allowed: 2hr  
Date: Tuesday 12 - 1 - 2012  
Subject: Zoology (Fish Biology)  
Course: Marine Biology

**Answer All the following Questions: Each Question [20] Mark**

**Question 1: Answer the Following Questions by Completing the Sentence:-**

16 (Marks), 2 (Marks) for each point

- A- Cohesion is defined as ----- while Adhesion property of the water is -----
- B- The Fish liver is the main source of ----- containing ----- and -----.  
Kidney of Fish are ----- . Circulatory system in Fishes is described as -----
- C- Fish body is covered with Exoskeleton that represented by ----- which are ----- in origin. These structures are absent in -----
- D- World Oceans are ----- in number. In Ascending order, these are -----
- E- Fins are useful for ----- and two types of them are found, these are -----, -----
- F- The Hadopelagic Zone lies between ----- to ----- meters while ----- zone lies from 1000 to 4000 meters. These two zones belonging to ----- zone.
- G- ----- zone covers the ocean from the surface level up to ----- . This part of pelagic zone is described as -----
- H- Water has three states. These are ----- , ----- , -----

**Question 2: Answer All of the following:-**

24 (Marks)

**[1] Define each of the following:-**

14 (Marks) 2 (Marks) for each point

- A- Hydrogen Bond.  
B- Surface Tension.  
C- Sea Water.  
D- Capillary Action.



E- Triple Form of Water.

F- Red Tides.

G- Plankton and Nekton.

[2] Explain Divisions of Plankton Community according to their Types, Size and Life Cycle?

10 (Marks)

**Question 3: Answer each of the following:-**

20 (Marks), 10 (Marks) For Each Question

[1] The Study of Oceanography is divided into a number of different Categories. Explain the Statement.

10 (Marks)

[2] Give a brief account on:

10 (Marks)

"Properties and Characters of the water Molecules".

**Examiners:**

**1- Prof. Fawkia El-Sayad**

**2- Dr. Heba Allah Elbaghdady**

*With My Best Wishes*



**Final Examination in Botany**

**First Term: Jan. 2012**

**Educational Year: 3<sup>rd</sup> Level**

**Program: Environmental Sciences**

**Subject : ( 322.ب.ع )**

**Course: Flora and Phytogeography**

**Time: 2hr.**

**Date: 23/1/2012**

**Full mark: 60**

**Question mark: 20**

**1 – Answer the following:**

- A) Explain the climatic classification of vegetational zones on basis of temperature and rainfall together. (10 marks)
- B) Write an essay on either ( i ) or ( ii ) : ( 10 marks)
- ( i ) The habitat types and flora of the Western Mediterranean Coastal Land.
- ( ii ) " Egyptian Deserts include a variety of landforms"- Discuss its habitats and characteristic flora.

**2 - Give a brief account on:**

- a) Characters of wind dispersed disseminules (5 marks)
- b) Types of terrestrial habitats according to the relative availability of water. (5 marks)
- c) The latitudinal zones of vegetation. (5 marks)
- d) Theory of tolerance of species. (5 marks)

**3-Discuss in detail each of the following:**

- a) Characteristics of the Egyptian flora. (6 marks)
- b) Habitat types and weed flora of the Nile Delta. (7 marks)
- c) Xerophytic vegetation of Oases and Depressions of Western Desert. (7marks)

**Examiners:**

Prof. Mohamed Abu Ziada

Prof. Ibrahim Mashly





المستوى الثالث  
العلوم البيئية  
(3)

**Answer the following questions: (Total: 80 Marks)**

[1] a- The following table is a random sample of weights of 80 students in kg

Weights	20-	30-	40-	50-	60-	70-
No. of Students	20	15	20	12	8	5

Find: i) median. ii) mode. iii) standard deviation. (21 Marks)

b- Find the coefficient of variation (C. V.) for the following data:

-2, -8, -6, 0, 4, 6, 10, 14, 12, 20.

(9 Marks)

[2] a- A random sample of 100 students shows that 20 of them are smoking regularly. Find 99% confidence interval for the proportion of the smoker students. (10 Marks)

b- Suppose that 4% of the glasses made by a certain machine will be defective in some way. If 10 glasses made by this machine are selected randomly, find

i) The probability that none of them is defective, and how many would we expect to be defective?

ii) The probability that at least 2 will be defective.

(10 Marks)

[3] a- A sample of size 16 is drawn from a normal population with mean  $\mu = 200$  and variance 36. Find the probability that the sample mean will be less than 199. (10 Marks)

b- The contents of 10 similar containers of sulfuric acid are 6, 8, 9, 10.2, 10.4, 9.5, 10, 10.5, 5 and 9.2 liters. Find 95% confidence interval for the mean of all such containers, assuming an approximate normal distribution. (10 Marks)

c- If  $X$  is a random variable which has the probability distribution

x	1	2	3	4
P(x)	a	0.2	0.3	0.1

Find i) the constant  $a$ . ii)  $E(3X+1)$ . iii)  $Var(X)$ .

(10 Marks)

$$(z_{0.005} = 2.58, z_{0.01} = 3.32, t_{9,0.025} = 2.262, t_{10,0.025} = 2.228, \phi(0.67) = 0.75, \phi(1.67) = 0.98, P(0 \leq z \leq 0.67) = 0.32, P(0 \leq z \leq 0.89) = 0.45).$$

\* برامج - شعب (فيزياء حيوي ، علوم بيئة ، كيمياء ونبات . ميكروبيولوجي)

تمنياتنا بالتوفيق.

د. بيه الدسوقي- د. عديلة عثمان - د. محمد جاد- د. فaten شبيحة