المستوى الأول . كيمياء حيوى . التغذية ع ٢٠١٣

Mansoura University
Faculty of Science
Zoology Department
Subject: Nutrition Z125

First Term
January, 2013
Date: 29/12/2013
Time: 2 hours

## Final examination for 1st level students, program Biochemistry

**Answer all the following questions**

**First question** [15 mark]

### (A) Choose the correct answer of the following:

1- The chief function of carbohydrates we eat is ----------
a- promotion of growth and tissue repair. b- supply of energy.
c- production of essential amino acids. d- transport of vitamin A.

2- Which nutrients do NOT provide energy?
a- water and carbohydrate. b- minerals and vitamins.
c- vitamins and protein. d- water, minerals, and lipids.

3- ---------- is a polyunsaturated fatty acid.
a- palmitic acid b- palmitoleic acid c- linoleic acid d- oleic acid

4- Vitamin K is needed in the body for ----------
a- enzyme action. b- blood clotting.
c- energy production. d- carbohydrate metabolism.

5- Iodine deficiency results in ----------
a- anemia. b- scurvy. c- osteomalacia. d- goiter.

6- Calcium is used in the body for ----------
a- enzyme regulation in cells. b- blood coagulation.
c- excitability of nerves and muscles. d- all of the above.

7- Most water is lost daily via----------
a- the skin. b- the lungs. c- urine. d- feces.

8- A food that contains all nine essential amino acids has been designated as containing ----------
a- incomplete protein. b- complete protein.
c- intracellular protein. d- adequate protein.

9- Essential nutrients ----------
a- generally must be obtained from food. b- are made by the body.
c- include alcohol. d- are enzymes.

10- The riboflavin coenzyme is ----------
a- NADP. b- NAD. C- TPP. d- FAD.

11- One slice of bread contains 18 g carbohydrates, 4 g protein, and 1.5 g fat. Approximately how many kcal are in one slice?
a- 25 b- 50 c- 101 d- 202

12- All B vitamins function as ----------
a- sources of energy. b- electrolytes.
c- intrinsic factors. d-coenzymes.

13- In which form are most dietary lipids found?
a- steroids. b- phospholipids. c-triglycerides. d- monoglycerides.

14- Which vitamin is fat-soluble and has carotene as its precursor?
a- vitamin A. b- vitamin B6. c- vitamin D. d- vitamin C.

15- The main active form of vitamin D in the body is----------
a- 1,25 $(OH)_2$ vitamin D. b- calcitonin.
c- prohormone vitamin D. d- hydroxyapatite.

## Second question [15 mark]

### (A) Fill in the blanks: [5 marks]

1- Two functions of water in the body are: ------(1)----- and ----(2)-----
2- The symptoms of vitamin C deficiency include: -------(3)-------
and ------(4)---------
3- Micronutrients are ------(5)------ and ------(6)---------
4- ---(7)------ is saturated fatty acid, while ---(8)------- is an essential amino acid.
5- Two examples of dietary polysaccharides are: -----(9)--- and ---(10)----
6- Active forms of vitamin A in the body are: -----(11)-----,-----(12)------
7- Physiological significance of proteins are: -------(13) -----, -----(14)-----
and ----(15)-----

### (B) Answer the following: [10 marks]

1- Using table, compare between water-soluble vitamins and fat-soluble vitamins.
2- Compare between disaccharides and diglycerides.
3- Identify and give one example of:
I- Macrominerals II- Phospholipids III- Antioxidants
IV- Simple proteins V- Omega-3 fatty acids VI- Monosaccharides
4- What are the functions of vitamin A?

## Third question [15 mark]

### (A) Identify each of the following: [5 marks]

1. Enzyme. 2. Anabolism. 3. Gluconeogenesis.
4. Enterohepatic circulation. 5. Oxidation of pyruvic acid.

### (B) Put (√) or (X), and correct the false sentences: [10 marks]

1. Metabolic reactions of fatty acid oxidation involve, at first, two hydorogenation steps.
2. The parotid glands secrete mainly thin, watery, and proteinaceous product.
3. Ammonia is very toxic, so the human body converts it to uric acid.
4. Gastric lipase converts emulsified fat into fatty acids and glycerol.
5. Diffusion means the movement of particles from an area of high concentration to an area of low concentration.
6. Complete oxidation of one acetate unit in citric acid cycle produces 8 ATP molecules.
7. Secretin hormone stimulates pancreas to produce pancreatic juice rich in enzymes.
8. The bile juice contains fat-splitting enzymes.
9. Nucleotidase catalyzes the conversion of nucleosides into ribose sugar and nitrogenous base.
10. Anaerobic glycolysis produces 2 molecules of pyruvic acid and 2 molecules ATP.

## Fourth question [15 mark]

### (A) Write short notes on each of the following subjects:

1. Role of pancreatic enzymes in digestion of proteins.
2. Oxidative deamination and glycogen synthesis.
3. Regulatory hormones of digestion which secreted by the duodenal special cells.

مع دعائنا لكم بالتوفيق

Dr./ Elsayed Elhabibi Dr./ Faried Abdel-Kader

المستوى الأول - لغة انجليزية

Mansoura University
ESP Center
Time: 2 hrs.

Faculty of Science
First Year
January 2014

# English Language Exam

## *Section One: Reading Comprehension:* (30 Marks)

**Read the following passage and then answer the questions that follow:**

Vaccines are prepared from harmful viruses or bacteria and administered to patients to provide immunity to specific diseases. The various types of vaccines are classified according to the method by which they are derived.

The most basic class of vaccines actually contains disease-causing microorganisms that have been killed with a solution containing formaldehyde. In this type of vaccine, the microorganisms are dead and therefore cannot cause disease; however, the antigens found in and on the microorganisms can still stimulate the formation of antibodies. Examples of this type of vaccine are the ones that fight influenza, typhoid fever, and cholera.

A second type of vaccine contains the toxin produced by the microorganisms rather than the microorganisms themselves. This type of vaccine is prepared when the microorganisms itself does little damage but the toxin within the microorganisms is extremely harmful. For example, the bacteria that cause diphtheria can thrive in the throat without much harm, but when toxins are released from the bacteria, muscles can become paralyzed and death can ensue.

A final type of vaccine contains living microorganisms that have been rendered harmless. With this type of vaccine, a large number of antigen molecules are produced and the immunity that results is generally longer lasting than the immunity from other types of vaccines. The Sabin oral antipolio vaccine and the BCG vaccine against tuberculosis are examples of this type of vaccine.

1. How are vaccines prepared?
2. What is the importance of vaccines?
3. What are the diseases that vaccines can cure?
4. What does the basic class of vaccines contain?
5. Suggest a title for the passage.

**II-Read these sentences and say whether they are true or false and justify your answer:**

1-Vaccines cannot provide immunity to diseases ( )
2-There are four types of vaccines presented in the passage ( )
3-Vaccines contain disease causing microorganisms ( )
4-Vaccines are derived in different ways ( )
5-Cholera is an example of vaccine that contains living microorganisms ( )

**III- Find the following from the passage:**

The antonym of: 1-general 2- secondary

The synonym of: 1- grouped 2- set free 3- result

## *Section Two: Grammar Focus:* (40 Marks)

**I- Choose the correct answer:**

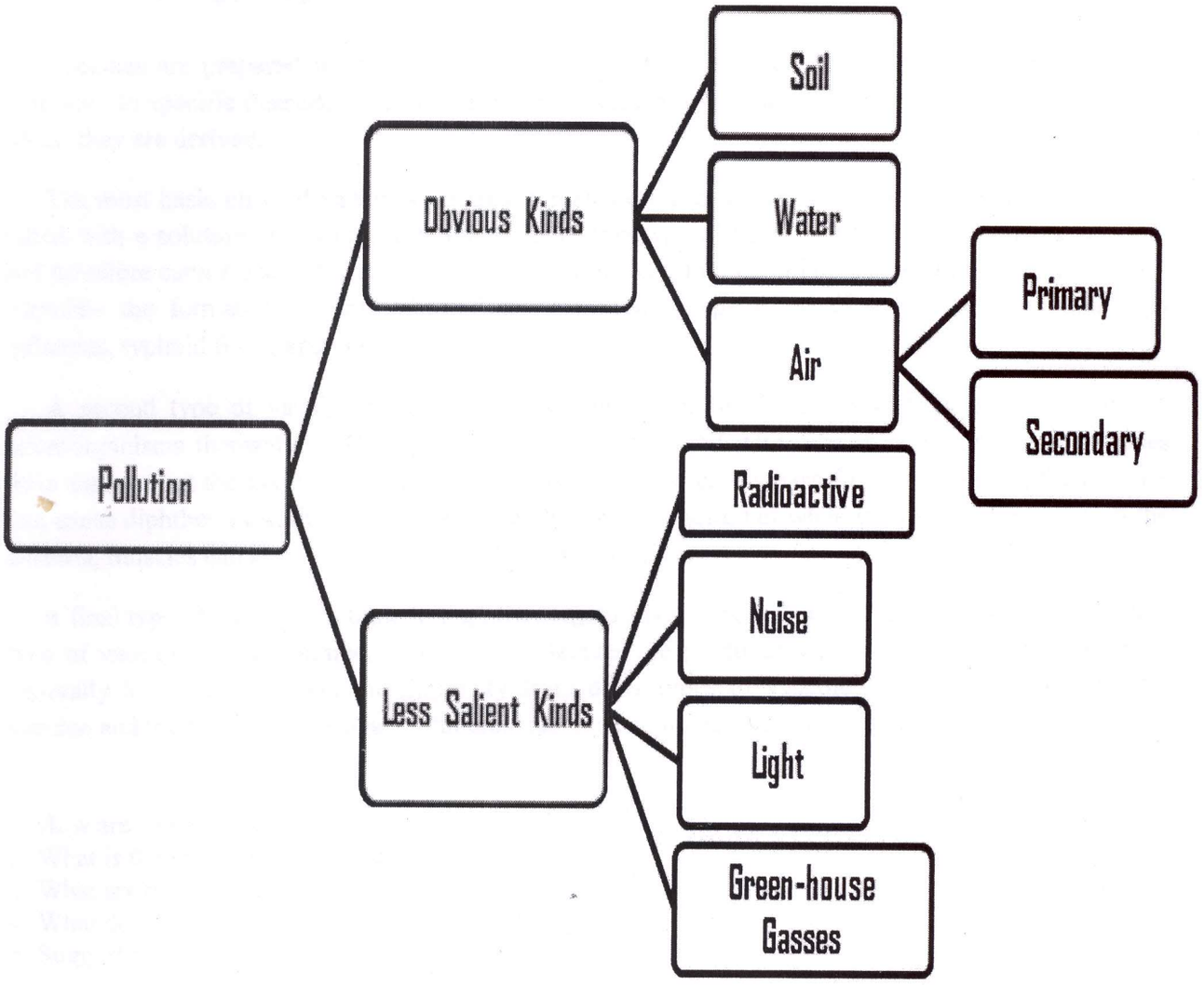
1. Having (did – done – doing – do) his homework, he returned home.
2. The machines (using-use-used-uses) in our factory are up-to-date.
3. The bus was very late (yet-however-as well-so) we decided to take a taxi.
4. Ashraf (whom-which-who-whose) wife is ill, cannot come to the party.
5. We still need two to make (up-about-out-off) the team.

**II- Do as shown in brackets:**

1. Violent winds pull out tress (begin with trees)
2. The girl who has golden hair, answer well ( omit who )
3. Whatever you decide …….. ( complete )
4. Wilson is ugly and fat. Wilson is my brother's dog.
   (combine by making an appositive phrase )
5. The movie …… made me laugh. ( add prepositional phrase)
6. Switzerland is <u>among</u> two mountain ranges. ( correct the underlined word)
7. He was seriously ill. He couldn't work at all. ( Being )
8. Mary can solve her problems. She is intelligent
   (combine by using a relative pronoun)
9. Naguib Mahfouz was the writer …….. ( complete )
10. Can you tell me where my things are at? ( correct )
11. Geometry /study / properties/figures. (make a definition)
12. A botanist / a person / studies plants. (make a definition)
13. The rotary pump is <u>inferior</u> to the reciprocating pump in being more efficient.
    (Use Superior)
14. Steel castings are low- carbon steels and medium carbon steels.
    (rewrite using "classified commercially" )
15. Chemistry /science/ deals with the composition and behavior of substances.
    (make a definition)

## *Section Four: Writing Skills:* (20 Marks)

**Look at the following diagrammatic classification; write a paragraph on the different kinds of pollution:**




*GOOD LUCK*

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

**Educational Year: First Level** | **Final Examination in Botany** | **Subject: Botany**

**Course: Plant Systematic** | **First Term: Jan. 2014** | **Program: Microbiology, Chemistry and Botany, Chemistry and Zoology, Environmental Sciences, Biochemistry and Geology.**

**Code: B 101** **Time: 2 hours** **Date: 12/1/2014** **Full Mark: 60** **Question Mark:15**

**Answer the following questions:** (الإمتحان في صفحتين)

## Q1 A- Complete the following:

1- Plants with gametophyte as dominant phase of life cycle are grouped under.....
2- In filicophyta, the female organ is known as.....
3- Developed seed bearing structures include cones and .....

## B- Choose the correct answer:

1- Dicot plants are characterized by three of the following except:

a. Pollen grain has only one opening
b. Seed is composed of 2 cotyledons
c. Vascular bundles are arranged in a ring
d. Have tap roots

2- Gymnosperms reproduce mainly by:

a. Spores
b. Enclosed seeds
c. Exposed seeds
d. a+b

3- In primitive plants, spores are produced inside:

a. Cones
b. Somatic cells
c. Archegonia
d. Capsules

## C- Answer the following:

1- Mention only one diagnostic character of bryophytes, filicophytes, gymnosperms and angiosperms.
2- Moist habitats are important for the reproduction of moss plants. Explain.

## Q2 A-Explain *Chlamydomonas* life history with the help of labeled diagrams.

## B- Complete the following:

1) The female sex organ in red algae is called.....while in brown algae is called.....
2) The diatom cell wall is called.....and is composed of.....but in green algae their cell wall is composed of.....
3) The reserve food material in phaeophyceae is .....while in chlorophyceae is.....and in rhodophyceae is.....
4) .....developed the Binomial System of nomenclature of organisms, the first name is called.....while the second name is called.....

**C- In a Table, compare** between the five kingdoms in Robert Whittaker's system of classification of living organisms.

فضلا تابع التالي

**Q3 A- Complete each of the following sentences with suitable word(s):**

1) *Dermatophilius* is characterized by.....where, other strains that can fix nitrogen are belonging to family.....
2) Cell wall chemistry is very important tool for actinobacterial classification as.....
3) Cell walls of fungi are composed primarily of.....

**B- Choose the best answer:**

1) Zygomycete hyphae are unique in that

**a-have dolipore septa b-are monokaryotic c-are dikaryotic d-lack septa**

2) When hyphae of basidiomycetes fuse in sexual reproduction, the resulting cell can best be called a:

**a-Monokaryon b-Dikaryon c-Homokaryon d-None of these**

3) Which of the following is not in the phylum actinobacteria:

**a-*Salmonella* b-*Streptomyces* c-*Nocardia* d-*Frankia***

4) Most endomycorrhizae are:

**a-Ascomycetes b-Zygomycetes c-Actinomycetes d-Oomycetes**

**C-** With the help of labeled diagram, discuss the life cycle of sac fungi?

**Q4 A- True or False and correct the false one(s):**

1) Presence of photosynthetic lamellae is a common character found in Cyanobacteria and Eubacteria ( )
2) Bacteria without flagella are known as Lophotrichous ( )
3) Bacterial plasmids are a self-replicating pieces of DNA ( )
4) Capsid is the outer layer of virus structure which derived from the host cell ( )

**B- Choose the best answer:**

1- During sexual reproduction in bacteria, which of the following occurs?

**(A) DNA is taken across the bacterial membrane**
**(B) Viruses transfer genes from one bacterium to another**
**(C) DNA from one bacterium is transferred through a tube (pilus) to another**
**(D) The bacterium divides by fission or budding**

2- The heat-resistant structure in bacteria is the

**(A) Flagella (B) Endospore (C) Anaerobes (D) Fimbriae**

3- .....bacteria save farmers millions of dollars every year in fertilizer costs.

**(A) Pathogenic (B) Aerobic (C) Nitrogen-Fixing (D) Methanogens**

4- Which of the following is not present in Bacteria?

**(A) RNA (D) Mitochondria (B) Cell Wall (C) Cytoplasm**

**Examiners:**

**Prof. Dr. Mohamed A. Abbas** **Dr. Ghada S. Abou-ElWafa**

| | | |
|---|---|---|
| المستوى : الأول<br>المادة : جبر وهندسة<br>كود المادة : (ر111) | كلية العلوم – قسم الرياضيات | دور: يناير 2014<br>الزمن : ساعتان<br>التاريخ : 2014/1/15 |

البرامج: كيمياء-الكيمياء الحيوية- كيمياء وحيوان- ميكروبيولوجى- كيمياء ونبات-علوم بيئة- جيولوجيا- جيوفيزيقا

**أجب عن الأسئلة الآتية:** **الدرجة الكلية :** 80 درجة

**السؤال الأول:**

أ –استخدم مبدأ الاستنتاج الرياضي فى اثبات أنه لاى عدد طبيعى $n \in N$ فان:

$(n^2+n+2)$ يقبل القسمة على 2 . *(10 درجات)*

ب – حلل الكسر $\frac{x^3}{(x-2)(x^2-4)}$ إلى كسوره الجزيئية . *(10 درجات)*

**السؤال الثاني:**

أ – عين معادلة القطع المكافىء الذى رأسه ( 3 , 1- ) و بؤرته ( 2 , 1- ) ثم اوجد طول الوتر البؤرى العمودى وكذلك معادلتى المحور والدليل مع الرسم. *(12 درجة)*

ب - ضع العدد المركب $z = \frac{1+7i}{(2-i)^2}$ فى الصورة المثلثية ثم اوجد $z^{\frac{4}{3}}$ . *(8 درجات)*

**السؤال الثالث:**

أ- باستخدام طريقة كرامر اوجد حل المعادلات الآتية:

$x - y - 2z + 1 = 0$ , $5x + 4y + 2z - 4 = 0$ , $2x + 3y + z + 2 = 0$ *(10 درجات)*

ب- ارسم القطع $x^2 + 4y^2 + 16y + 6x + 21 = 0$

موضحا جميع المعلومات الخاصة به. *(10 درجات)*

**السؤال الرابع :**

أ- اوجد نقطة تقاطع المستقيمين $4x - y - 3 = 0$ , $2x - y - 1 = 0$ والزاوية بينهما

ثم اوجد معادلة المستقيم الذي يمر بنقطة التقاطع ويوازى المستقيم $x - 2y + 5 = 0$

*(10 درجات)*

ب – باستخدام نظرية ديموافر اوجد مفكوك $\sin 4\theta$ , $\cos 4\theta$ بدلالة قوى $\sin\theta$, $\cos\theta$ *(10 درجات)*

*مع أطيب التمنيات بالتوفيق: اسرة التدريس*