أجب على الأسئلة الآتية :-

السؤال الأول :- ضع علامة صح أو علامة خطا بدون تعليل

١- صدر الإعلان العالمي لحقوق الإنسان في العاشر من ديسمبر عام ١٩٥٨ .

٢- يعتبر رضاء المجني عليه سبباً لإباحة الفعل في القتل بدافع الرحمة .

٣- تعد حرية الرأي هي الحرية الأم بالنسبة لطائفة الحريات المعنوية .

٤- يعد اتخاذ الدولة ديناً رسمياً لها عائقاً أمام الحرية الدينية .

٥- حق التقاضي يمكن الشخص من اقتضاء حقه عن طريق العدالة الخاصة .

السؤال الثاني :- اكتب في موضوع واحد فقط مما يلي :-

١- تكلم عن حق التقاضي مبينا ماهيته ومصادره والضمانات اللازمة له .

٢- تكلم عن حق الإنسان في الحياة في الإسلام .

Mansoura University
Faculty of Science
Botany Department
Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
1st Term: Jan. 2016
Qualifying Examination For **1st Level Biotechnology**
Course(s): General Botany (B101)

Date: 05/01/2016   Time:2 hrs
Full mark: **60**

أجب عن الاسئلة الاتية:

س١: أ- حدد بالرسم ثلاثة انواع في كل حالة من ما يلي: (١٥ درجة)
١- حافة الورقة   ٢- قمة الورقة   ٣- تحورات الاوراق العادية

ب- أكمل ما ياتي:
١- البذرة عبارة عن .... بينما الحبة تمثل..........
٢- تنقسم الاوراق المفصصة الريشية الي الانواع التالية .... و..........و ....
٣- يوجد التفرع الصادق المحور في نبات .... ويقصد به .... ويعتبر النمو
.... أما في حالة التفرع كاذب المحور مثل نبات .... يحدث .... وهنا
يعتبر النمو ....

س٢ : وضح بالرسم كيف تفرق بين كل مما يلي: (١٥ درجة)
أ- كورمة و ريزومة.
ب- جذر تنفسي و جذر هوائي .
ج- ورقة مركبة ريشية و فرع جانبي.

س٣: أجب عن ما يلي مع التوضيح بالرسم: (١٥ درجة)
أ- أهم الصفات المميزة للسيقان.
ب- رسم تخطيطي يعبر عن التركيب الداخلي لورقة ذات فلقتين.
ج- تركيب جدار حبة اللقاح ثم اذكر بعض الاشكال لحبوب اللقاح المعروفة و أهمية
دراسة علم حبوب اللقاح.

س٤: (١٥ درجة)
١- إذكر صفات النسيج الكولنشيمي و أهم انواعه وفقا لطريقة التغلظ.
٢- حدد صفات النسيج البرانشيمي مع ذكر بعض أنواعه مع الرسم.
٣- ما هي مكونات اللحاء؟ وضح بمثال حالة نباتات ذات الفلقة الواحدة.

مع أطيب التمنيات
أ.د سامي أبو القاسم

Answer the following questions:

Q1   "Best cases put students in real-life situations, to make decisions."

Discuss with a help of simple case study. (20 marks)

Q2   The Leaders-Dynamic Results (LDR) program is designed around

Five core competency areas: (20 marks)

1- Leads people within organizations.

2- Develops a high-potential work force.

3- Creates an environment of integrity and Trust.

4- Facilitates change.

5- Drives Results

Discuss **Two only** and evaluate.

Q3   "Critical thinking includes the component skills of analyzing arguments, making inferences, using inductive or deductive reasoning, judging or evaluating, and making decisions or solving problems." Briefly discuss. (20 marks)

Q4   "Logic and critical thinking skills." Define and describe with example. (20 marks)

Best Luck
Prof. Mohammed Nagib Hasaneen
- CT in IBCT
- Prof. of Plant Physiology

Question (I). (20 marks)

(1). Show by mathematical induction that

$$1^2 + 2^2 + 3^2 + ... + n^2 = \frac{1}{6}n(n+1)(2n+1).$$

(2). Decompose the following fraction to partial fractions

$$\frac{5x^2 - 3x + 4}{(x+1)(x^2 - 2x + 6)}.$$

(3). If $z = 1 + i\sqrt{3}$ find z^4.

(4). Find the coordinates of the foci, find the lengths of the major and minor axis and graph the equation $3x^2 + y^2 = 18$.

Question (II). (20 marks).

(1). Solve and write in interval notation the inequality $|7 - 3x| > 2$.

(2). Solve by completing the square $2x^2 - 4x + 3 = 0$.

(3). Solve $\log(x+3) + \log x = 1$.

(4). Find the domain of the function $f(x) = \log(x^2 - 3x + 2)$.

Question (III). (20 marks).

(1). The function f is defined by $f(x) = \begin{cases} 4x + 11 & \text{if } x < -2 \\ 3 & \text{if } -2 \leq x \leq 1 \\ \frac{-1}{2}x + \frac{7}{2} & \text{if } x > 1. \end{cases}$

Find $f(-3)$, $f(-2)$, $f(1)$, $f(3)$ and graph the function.

(2). Find $(f \circ g)(x)$ and its domain if $f(x) = \sqrt{4 - x^2}$ and $g(x) = \sqrt{3 - x}$.

(3). Prove that the function $f(x) = 2x - 1$ is one-to-one and find its inverse.

(4). Find the x−intercept of $f(x) = 2^{3x-2} - 5$ to four decimal places.

Question (V). (20 marks)

(1) Verify the identity $\frac{\tan x - \cot x}{\tan x + \cot x} = 1 - 2\cos^2 x$.

(2). Write the product $\cos 3t \sin t$ as a sum or difference.

(3). Sketch a graph of the function $f(x) = \tan x$ and listing its properties.

(4). By using Ferrari's method find the roots of the equation

$$x^4 + 2x^3 - 12x^2 - 10x + 3 = 0.$$

Best Wishes————————— ————*Prof. Samir H. Saker*

Mansoura University

Physics Department

Total Mark [50 Mark}

Answer the following questions:

First term Exam 2016

Biophysics for Biotechnology students

First level

Time Allowed 2 HOURS

Q. 1. A : Explain the scientific concept of the followings(20 Mark]

(1) Heart function by using Electrocardiography -   2) Chemical shift interaction in terms of shielding and deshielding silicon nuclei 3) IR Radiation 4) NMR spectroscopy and it uses

B- Complete the following and list the right answer! [10Marks]

1-The (ECG-NMR-X-Ray) is a diagnostic tool that measures and records the electrical activity of the   heart in exquisite detail. Each beat of your heart is triggered by an (electrical – magnetic- electromagnetic) impulse normally generated from special cells.

2- Low chemical shift interactions leads to (more shielded – less shielded) materials

3- Ferromagnetic materials are characterized with their----------- and ---------- magnetization even in the absence of an external field.

4- Negative magnetization is the property related to --------------- materials

5- To obtain resonance conditions down field shift is applied in ------------ materials

6- The membrane can be modeled as a charged --------- that follows the relationship
$$V=Q/C$$

Q2- a- List the scientific expression equivalent to the following quantity[12 Marks]

1- Dissolved salts that ionize to positive and   negative ionic charges in the body fluids

2-Electric potential which results due to creation of a negative potential in the cell interior relative to the exterior
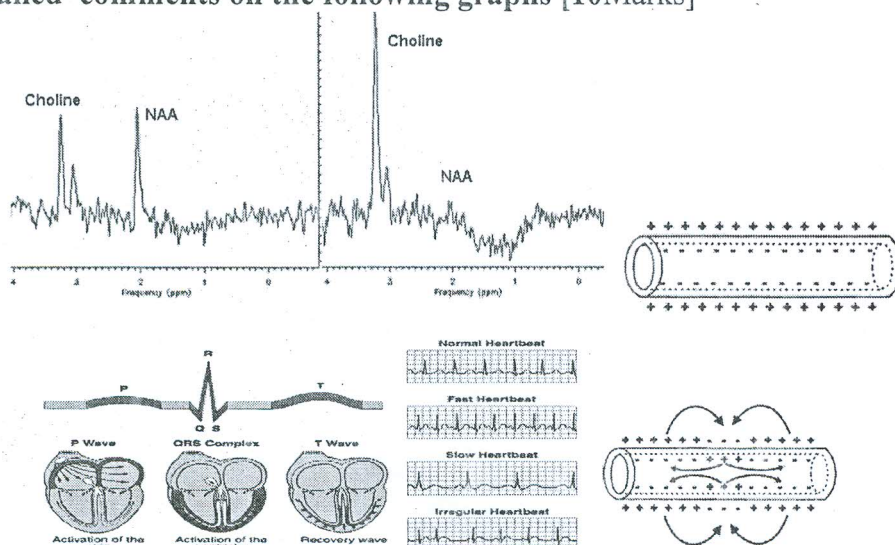
3-Response of some membrane ionic channels to changes in the surrounding membrane electric field

4- Defined as the electric field where the diffusive flux of ions exactly counterbalances the electric field flux.

5- Potentials arise when membrane selectively passes certain ions and blocks others.

6- Difference between the field at nucleus and the applied external field.

b- Write detailed comments on the following graphs [10Marks]

Best wishes Dr : AK HASSAN

Mansoura University Faculty of Science Chemistry Department Subject: Bioinorganic Chemistry		First Semester Level 1; Biotechnology Date: Jan. 2016 Time: 2 hours Marks: 60

Answer The Following Questions

I)   **Choose the most correct answer (24 marks)**

1) All these compounds are ionic except

a) NaCl   b) CH_4 c) $Ca(OH)_2$ d) $MgCO_3$ e) Na_2S

2) The size of Si is smaller than that of ....

a) C   b) Al   c) S   d) P   e) b & c

3) The electronic configuration of Cl (Z = 17) is

a) [Ne] $3s^2 3p^5$ b) $1s^2 2s^2 2p^6 3s^2 3p^4$ c) [Ar] $4s^2 3d^2 4p^2$ d) [Ar] $4s^2 3d^2 4p^3$

e) [Ne] $4s^2 3d^2 4p^2$

4) On the bases of Cl electronic configuration, it rooms in .... period and group

a) three, six   b) four, six   c) four, five   d) four, six   e) four, four

5) Cl element tends to .... number of .... electrons to be .... ion

a) lose, 2e, +ve ion   b) lose, 1e, +ve ion   c) gain, 2e, -ve ion   d) gain, 1e, -ve ion

e) gain, 2e, -ve ion

6) In the reaction $Na_2S + AgNO_3 \rightarrow Ag_2S + NaNO_3$

6.1)   **In a stoichiometric chemical reaction; .... mole of $AgNO_3$ required to react with 156 gm of Na_2S.**
   a) 1   b) 2   c) 5   d) 4   e) 3

6.2)   **The coefficients of Ag_2S and $NaNO_3$ are .... and ...., respectively**
   a) 1, 1   b) 2, 2   c) 1, 2   d) 2, 1   e) 3, 1

6.3)   **If 0.5 mole of Na_2S reacts with 85 gm of $AgNO_3$, the limiting reactant is**
          a) Na_2S b) Ag_2S c) stoichiometric reaction   d) the same   e) $AgNO_3$

6.4)   **With data in (5.3), the amount of Ag_2S obtained is .... gm**
   a) 156   b) 246   c) 24.6   d) 2.44   e) 41.4

6.5)   **According to practical experiment in (5.3), Ag_2S Yield% = 50%, the actual yield of Ag_2S is ....gm**
   a) 123   b) 231   c) 312   d) 213   e) 321

7) .... gm of NaCl contains 2.0 moles

a) 35.5   b) 117   c) 23   d) 58.5   e) 42

8) In the reaction; $Fe^{2+} + Cu^{2+} \rightarrow Cu^+ + Fe^{3+}$; .... is the oxidizing agent

a)Fe^{2+} b) Cu^{2+} c) Cu^+ d) it is not redox   e) non of the above

9) The ionization energy of O is .... than that of N due to ....

a) lower, on the left of peroid   b) lower, half field p-orbital in N

c) lower, as opposite to the role   d) b & c   e) a & c

10) Myoglobin is containing ..... Globin protein unit and react with .... molecules of O_2
a) 4 & 4   b) 4 &2   c) 4 & 1   d) 1 & 1   e) 1 & 4

11) acac and NH_2-CH_2-CH_2-NH_2 are .... ligands

a) neutral monodentate   b) neutral bidentate   c) mononegative monodentate   d) mononegative bidentate
e) b & c

12) In the complex, $[Cr(H_2O)_4Cl_2]Cl$, the geometry is ...... and oxidation state of Cr is ....

a) tetrahedral, +2   b) linear, +1   c) octahedral, +3   d) octahedral, +2

e) octahedral, +1

....

I)   Complete or choice between parentheses in the following sentences (15 marks)

1) Arrange these ions and atoms in order of increasing size: Cs^+, I^-, Xe ....< ....< ....

2) Choose the metallic element from each pair: (Sn & Te) , (P & Sb) , (S & Br).

3) N_2 molecule has (covalent –ionic) with (single – double – triple) bond.

4) .... gm of NaCl require to soluble in 100 mL solution to prepare correct saline solution (0.086%), which is .... with blood serum.

5) The set of four quantum numbers (3, 1, 0, 1/2) is corresponding to .... electron.

6) H_2O is an example of (normal covalent – ionic – polar covalent) compound, while CaO is .... Compound.

7) $_{11}Na$ atom tends to (gain-lose) .... electron to form ...., which has electronic configuration of {[He] – [Ne] – [Ar]}.

8) ....mL of 0.5M NaOH required to prepare 250 mL of 0.2 M NaOH

9) Co-enzyme B12 contains ...... units of pyrole and .... methylene and .... metal ion in oxidation state ...., while Hb contains (Fe^{2+} - Fe^{3+}), which can not be oxidized in water due to ....

10) .... is Mg^{2+}-porphyrine complex

11) In the blood, cisplatin, *cis*-$[Pt(NH_3)_2Cl_2]$ is hydrolysed to ....

12) .... and .... are Fe-S protein

13) Alkalosis means (increase – decrease) the concentration of .... in the blood.

....

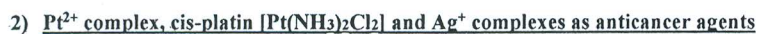III) True and False; choice the suitable response and please correct the wrong one (10 marks)
1- T - F   NaOH insoluble in water due to the polarity

2- T - F $[Ag(CN)_2]^-$ is linear complex with coordination number 2

3- T - F $Hb + 2O_2 \rightarrow Hb(O_2)_4$ with equilibrium constant 3000 - 6000

4- T - F   hypertonic means the concentration of NaCl in the plasma is lower than that in the cells

5- T - F   Mb is organometallic complex

6- T - F   Vitamin B12 is essential to storage O_2

7- T - F   superoxide dismutase is Cu^{2+} - Mo cofactor
8- T - F   denitrification means N_2 changed to NH_3 *via Rhizobium* bacteria
9- T - F   increasing the pH of the blood more than 7.4 is known as acidosis

10- T - F   Fe-Mo cofactor is the only Nitrogenase enzyme responsible for nitrogen fixation.

....

IV) Comment in the following photos (11 marks)
1) Role of Carbonic anhydrase enzyme in respiration
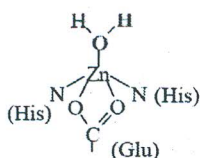
1) Hb and Mb binding curves

2) Pt^{2+} complex, cis-platin [Pt(NH$_3$)$_2$Cl$_2$] and Ag$^+$ complexes as anticancer agents

I)   MCQ   ANSWER SHEET

No.	a	b	C	d	e
1					
2					
3					
4					
5					
6.1					
6.2					
6.3					
6.4					
6.5					
7					
8					
9					
10					
11					
12					

II)   True and Faulse

No.	T	F	F
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Question One: Reading Comprehension: (25 Marks)

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

(1) Scientists and researchers are interested in stem cells for several reasons. Although stem cells do not serve any one function, many have the capacity to serve any function after <u>they</u> are instructed to specialize. Every cell in the body, for example, is derived from first few stem cells formed in the early stages of embryological development. Therefore, stem cells extracted from embryos can be induced to become any desired cell type. This property makes stem cells powerful enough to regenerate damaged tissue under the right conditions.

(2) Stem cells are a class of undifferentiated cells that are able to differentiate into specialized cell types. Commonly, stem cells come from two main sources: Embryos formed during the blastocyst phase of embryological development (embryonic stem cells) and Adult tissue (adult stem cells). Both types are generally characterized by their potency, or potential to differentiate into different cell types (such as skin, muscle, bone, etc.).

(3) Adult or somatic stem cells exist throughout the body after embryonic development and are found inside of different types of tissue. <u>These</u> stem cells have been found in tissues such as the brain, bone marrow, blood, blood vessels, skeletal muscles, skin, and the liver. They remain in a quiescent or non-dividing state for years until activated by disease or tissue injury.

(4) Adult stem cells can divide or self-renew indefinitely, enabling them to generate a range of cell types from the originating organ or even regenerate the entire original organ. It is generally thought that adult stem cells are limited in their ability to differentiate based on their tissue of origin, but there is some evidence to suggest that they can differentiate to become other cell types.

(5) Embryonic stem cells are derived from a four- or five-day-old human embryo that is in the blastocyst phase of development. The embryos are usually extras that have been created in IVF (in vitro fertilization) clinics where several eggs are fertilized in a test tube, but only one is implanted into a woman.

(6) Sexual reproduction begins when a male's sperm fertilizes a female's ovum (egg) to form a single cell called a zygote. The single zygote cell then begins a series of divisions, forming 2, 4, 8, 16 cells, etc. After four to six days - before implantation in the uterus - this mass of cells is called a blastocyst. The blastocyst consists of an inner cell mass (embryoblast) and an outer cell mass (trophoblast). The outer cell mass becomes part of the placenta, and the inner cell mass is the group of cells that will differentiate to become all the structures of an adult organism. This latter mass is the

source of embryonic stem cells - totipotent cells (cells with total potential to develop into any cell in the body).

(7) In a normal pregnancy, the blastocyst stage continues until implantation of the embryo in the uterus, at which point the embryo is referred to as a fetus. This usually occurs by the end of the 10th week of gestation after all major organs of the body have been created.

(8) However, when extracting embryonic stem cells, the blastocyst stage signals when to isolate stem cells by placing the "inner cell mass" of the blastocyst into a culture dish containing a nutrient-rich broth. Lacking the necessary stimulation to differentiate, they begin to divide and replicate while maintaining their ability to become any cell type in the human body. Eventually, these undifferentiated cells can be stimulated to create specialized cells.

(9) Stem cells are either extracted from adult tissue or from a dividing zygote in a culture dish. Once extracted, scientists place the cells in a controlled culture that prohibits them from further specializing or differentiating but usually allows them to divide and replicate. The process of growing large numbers of embryonic stem cells has been easier than growing large numbers of adult stem cells, but progress is being made for both cell types.

(A)Answer the following questions:
1- What is the stem cell?
2- Identify the sources of stem cell.
3- How can we get the embryonic stem cell?
4- What is a zygote?
5- When can we call embryo as fetus?

(B) Decide if the following statements are true (T) or false (F) according to the information in the passage and correct the false one(s):

1- Stem cells serve two main functions.
2- Somatic stem cells have been found in tissues of brain and bones only.
3- Embryonic stem cells are derived from a four-day old human embryo in blastocyst phase of development.
4- The single zygote cell begins a series of divisions forming 2,4,8,16 cells.
5- When extracting embryonic stem cell, the blastocyst stage signals when to isolate stem cells by placing the trophoblast of blastocyst into a culture dish containing a nutrient-rich broth.

(C) Find the antonyms of the following words in the passage:

1- uncaring ------- paragraph (1)
2- outside --------- paragraph (3)
3- combine ------- paragraph (4)

(D) What are the underlined words in the passage refer to:

1- they ------- paragraph (1)
2- these ------ paragraph (3)

Question Two: Grammar and Structure: (25 Marks)

(A) In some of these sentences much is incorrect or unnatural. Change much to many or a lot (of) where necessary. Put "Right" if the sentence is correct :

1- We didn't spend much money. ----------
2- Sue drinks much tea. ----------
3- I don't know much people in this town. -------
4- Did it cost much to repair the car? --------
5- Most of the town is modern. There are much old buildings. ------------

(B) Complete the sentences using one of the following words. Use a/an where necessary:

                accident   biscuit   coat   electricity   key

1- Our lives would be very difficult without ----------- .
2- It wasn't your fault. It was ----------- .
3- It's very warm today. Why are you wearing ----------- ?
4- I couldn't get into the house because I didn't have -------------.
5- Are you hungry? Would you like ------------- with your coffee?

(C) Identify the lexical class in the following sentences:
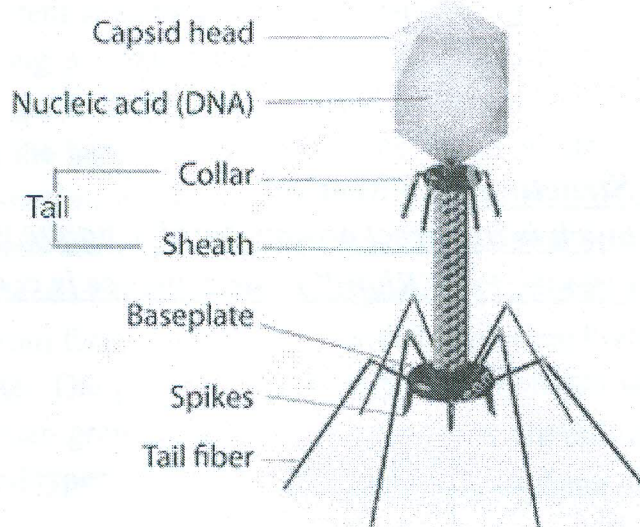
1- In Britain, children from the age of five have to go school.
2- Mark went out last night.
3- How do your children get home from church?
4- It's nice to travel around but there's no place like home.

(D) Decide if the following words are countable (C), uncountable (U) or both:

| 1- morning | 2- yen | 3- tangerine | 4- love | 5- pollution |

Question Three: Writing: (30 Marks)

The diagram below shows the structure of bacteriophage. According to your studies and the information in the diagram, write down two paragraphs on bacteriophage, its definition, structure, the function of each part and its role in laboratory search. Mention your topic sentences and give a title to your paragraphs.

Capsid head

Nucleic acid (DNA)

Collar

Tail

Sheath

Baseplate

Spikes

Tail fiber

Best of Luck

Answer the following questions:

Q1. A. Complete the missing word(s) (10 marks)

1. The protein coat of a virus is known as ………….., however, slime layer covering bacterial cell wall is called………

2. The algal flagellum contains special protein called……….

3. The green alga *Spirogyra* reproduced asexually by……….

4. The dominant generation in a fern life cycle is the ……….

5. The principal photosynthetic pigment is………….

6. A complete flower has sepals, petals, stamens and ………

7. The male sex organ of a fern plant is known as…………….

8. Nucleus in *Nostoc* is ……….., however, nucleus in Gymnosperms is ……..

9. The ovary of the carpel produces ………

10. Plants that have vascular tissues are collectively known as ……..

B. Choose the most correct answer (5marks)

1. In algae, vegetative reproduction occurs by:			
a. autospores	b. fragmentation	c. oospore	d. zygospore

2. The staminate flower must lack:			
a. calyx	b. corolla	c. carpel	d. pollen grains

3. The green alga *Chlamydomonas* is:			
a. unicellular	b. colonial	c. filamentous	d. parenchymatous

4. Which of the following algae is parasite			
a. *Scenedesmus*	b. *Spirogyra*	c. *Chlorella*	d. *Prototheca*

* فضلا إطلب لورقة

1

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

•Mansoura
University
BioTech
Program

Final Examination in Botany
First Term: Jan. 2016

5. Which of the following structures is absent in Bryophytes?			
a. antheridium	b. archegonium	c. rhizoids	d. true root

Q2. A. Give a brief account of different modes of nutrition in algae   (5 marks)

   B. Mention the main differences between dicot and monocot plants   (5 marks)

   C. With the help of labeled diagram **illustrate** the alternation of generation life cycle of Bryophytes   (5 marks)

Q3. Illustrate each of the following:

   A. Thallus organization in cyanobacteria   (5 marks)

   B. Vegetative reproduction of yeast   (3 marks)

   C. Conjugation in *Rhizopus*   (5 marks)

   D. Basic structure of virus   (2 marks)

Q4. A. Demonstrate with illustrations the bacterial cell wall functions and chemical composition   (5 marks)

   B. Differentiate types of bacterial nutrition   (5 marks)

   C. Recognize the general features that distinguish kingdom Fungi from the other kingdoms.   (5 marks)