



Sohag University
Faculty of Science
Department of Botany



Pre-pharmacy students
Date: 28/12/2013
Time: 3 hours

Final Examination of General Botany (Total Marks: 150)

Answer all the five questions in the answer notebook:

Question 1 (Phycology) (Total marks 30)

A. Show which of the following sentences are true or false, and correct the false ones: (20 Points)

1. Cyanobacteria do not have mitosis or meiosis divisions ()
2. Binary fission takes place in filamentous cyanobacteria ()
3. Microcystins are the most common neurotoxins produced by cyanobacteria ()
4. Chlorella reproduces sexually by auxospores ()
5. Pediastrum is an example of motile green algal colonies ()
6. The red color of Rhodophyta is due to the presence of phycoerythrin pigment ()
7. The storage product in Eugleophyta is glycogen ()
8. Dinoflagellates contain prokaryotic nucleus ()
9. The cell wall in diatoms is composed of silica ()
10. Brown algae contain algin, which is useful for obesity treatment ()

B. Give the scientific term for each of the following:- (5 points)

1. The organelles responsible for the buoyancy of cyanobacteria on the water surface are.....
2. The pigment found in all algal groups is.....
3. The fusion of two gametes that are morphologically and physiologically different is.....
4. Zoospores containing many nuclei and chloroplasts are called.....
5. The vegetative propagative bodies in *Chara* are.....

C. Show with drawing the type of life cycle in *Ulva* (5 Points)

Question 2 (Mycology)

(Total marks 30)

A. Choose the correct answer: (5 points)

1. The class Eurotiomycetes contains all ascomycetes which produce their asci within a
(a) Pseudothecium. (b) Apothecium. (c) Peritheciuerzedm. (d) Cleistothecium.
2. Chytrids are characterized by producing:
(a) ascospores. (b) zoospores. (c) basidiospores. (d) conidia.
3. Most of the asci contain ascospores.
(a) sixteen. (b) thirty-two. (c) eight. (d) two.
4. In Ascomycetes, the product of the sexual reproduction are:
(a) ascospores. (b) zoospores. (c) basidiospores. (d) conidia.
5. Species of *Taphrina* are mostly on Fagaceae and Rosaceae.
(a) parasitic. (b) saprobic. (c) symbiotic.

B. Mark the following sentences with “√” or “×” and correct the wrong sentences:

(5 points)

1. Asci in the class Eurotiomycetes are found in a hymenium layer. ()
2. The predominant growth form of the sub-phylum Saccharomycotina in culture as well as in nature is fungal mycelium. ()
3. Sporangiola distinguished from sporangia by their smaller size and fewer spores. ()
4. Fission and budding are methods of propagation normally encountered in the yeasts and in the dimorphic ascomycetes. ()
5. Many species of *Aspergillus* and *Penicillium* are xerophilic. ()

C. Complete the following sentences: (5 points)

1. Benefits that we get from *Saccharomyces cerevisiae* include: and
2. Prototunicate asci are characterized by and
3. The current classification of living organisms include three main domains namely:, and

4. Kingdom Fungi include phylums namely: , ,
..... and
5. Sexual reproduction in fungi occurs in three steps namely: ,
..... and

D: Match sentences in column A with those in column B: (7 points)

Column A	Column B
1. Perithecium) Closed ascomata with globose asci that distributed irregularly inside the ascomata venter and unicellular globose ascospores.
2. Apothecium) A disc or cup-shaped ascomata with an exposed hymenium layer.
3. Cleistothecium) Flask-shaped ascomata that contain unitunicate asci and sterile hyphae called paraphysis .) Flask-shaped ascomata which contain bitunicate asci and sterile hyphae called pseudoparaphysis.
4. Isogamous planogametic copulation) tranfer of protoplast from one gametangium to another.
5. Anisogamous planogametic copulation) nonmotile egg fertilized by a motile antherozoid.) fusion between somatic structures.
6. Gametangial copulation) morphologically similar but physiologically different gametes.
7. Somatogamy) one gamete is considerably larger than the other.

E. Discuss with drawing the following sentences:

1. Ascus formation in *Taphrina*. (4 points)
2. Asexual reproduction in Zygomycota. (4 points)

Question 3: Plant Physiology (Total marks 30)

(A) Write short notes on:(10 points)

- 1- Nucleus in higher plants.
- 2- Plasmalemma in plants.

(B) Discuss briefly the electron transport system leading to formation of ATP in photosynthetic and oxidative phosphorylation. (10 points)

(C) Answer the following questions using yes or no and correct the error:(10 points)

1. Chlorophylls and carotenoids are insoluble in water while phycobillins are soluble in water. ()
2. Transferases catalyze the rearrangement of chemical bonds within a substrate. ()
3. Isomerases catalyze the transfer of an intact functional group from one substance (the donor) to another (the acceptor). ()
4. Exo-enzymes are restricted in the various organelles of the cell in order to perform specific function. ()
5. The cell wall is non-living and permeable. ()

Question 4: Taxonomy of Flowering Plants

(Total marks 30)

A. Put (√) or (×)

(4 points)

1. The arrangement of sepals & petals in bud is known as placentation. ()
2. Cymose inflorescence with many lateral branches bearing flowers is dichasium. ()
3. Sepal is not apart of a floral whorl. ()
4. Essential whorls are Corolla and Gynoecium. ()

B. By drawing only, Draw structure of androecium.

(3 points)

C. Define:

1- Placentation

2- Aestivation

(3 points)

D. Choose the correct answer:

(20 points)

1- The arrangement of sepals & petals in bud is known as:

- a. aestivation b. placentation c. duration d. Modification

2- Cymose inflorescence with many lateral branches bearing flowers is:

- a. polychasial b. dichasial c. monochasial d. verticillaster

3- Which one is not a part of a floral whorl:

- a. bract b. petal c. sepal d. carpel

b) How to draw Lewis structures for the following molecules:

1- CO_2 2- HCO_3^- 3- three structures only for CH_2N_2 (9 points)

c) Oxidation of 2-butene using Potassium permanganate (9 points)

Q-3 Discuss by equation:

a) Markonikov Rule (8 points)

b) Explain with Drawing, the Hybridization of carbon-carbon double bond (π -bond) (9 points)

c) Electrophilic mechanism for oxomercuriation of 2-methyl-2-butene (9 points)

Best Regards

Prof. Dr. Ahmed M. El-Saghier