

**Second Midterm exam Physiology BOT271**  
**First semester 2019/2020**

Name: .....

University ID: .....

Section no.: 59825

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Answer the following questions

(10 grades)

1. Match column A with B

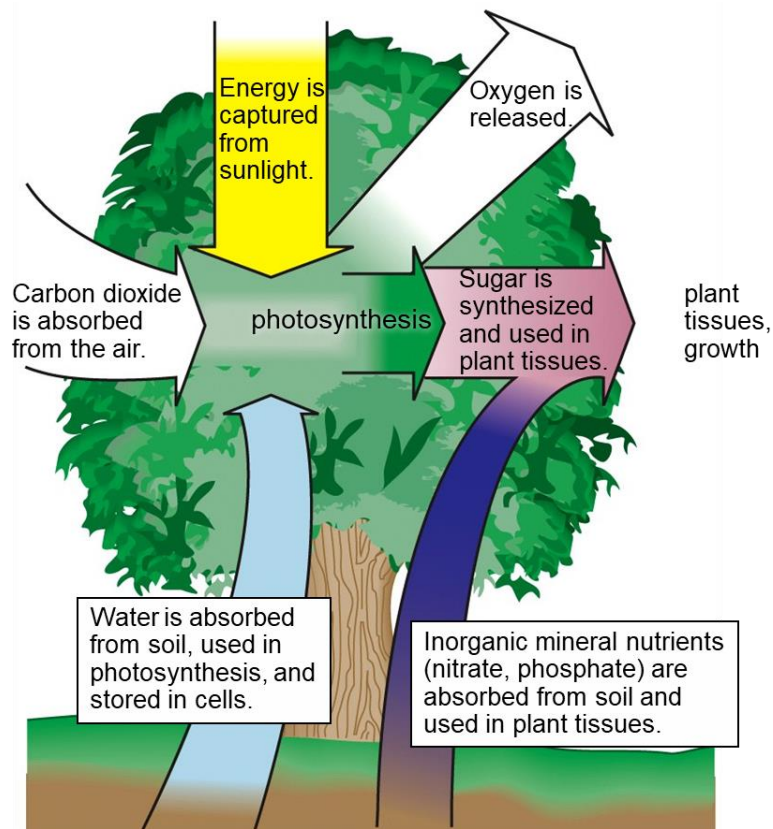
A	B
<b><u>Suspension</u></b>	scattering of light by particles in a colloid or suspension, which causes a beam of light to become visible
<b><u>Colloid</u></b>	the colloidal dispersion of one liquid in another
<b><u>Tyndall effect</u></b>	the chaotic movement of colloidal particles, caused by collision with particles of the solvent in which they are dispersed
<b><u>Brownian motion</u></b>	a mixture whose particles are intermediate in size between those of a suspension and a solute solution
<b><u>Emulsion</u></b>	a mixture from which some of the particles settle out slowly upon standing

2. Observe the diagram then answer:

- a) This diagram shows that photosynthesis is an \_\_\_\_\_ reaction because \_\_\_\_\_.

Carbon for making carbon compounds (such as sugar) comes from \_\_\_\_\_.

Oxygen, hydrogen, and minerals are needed also. Oxygen and hydrogen come from \_\_\_\_\_. Minerals comes from \_\_\_\_\_.



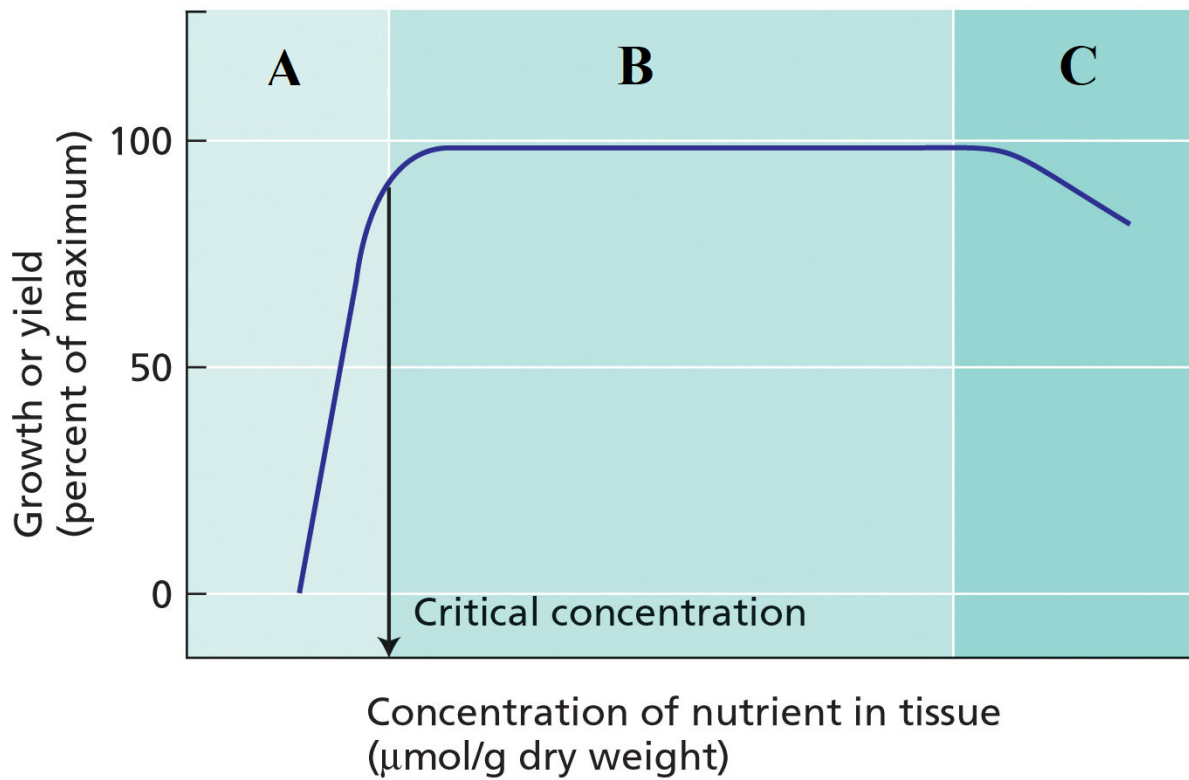
- b) According to the following relationship between the concentration of nutrient in tissue and plant growth

A – \_\_\_\_\_ zone.

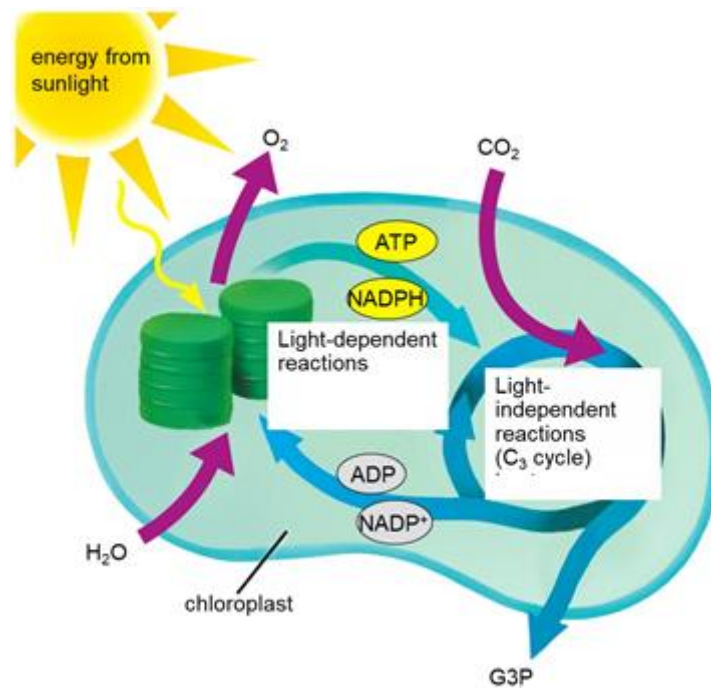
B – \_\_\_\_\_ zone.

C – \_\_\_\_\_ zone.

(toxic – deficiency – adequate)



- c) Light energy is “captured” by \_\_\_\_\_, which is embedded in the thylakoid membranes  
 \_\_\_\_\_ and \_\_\_\_\_ are used to move energy from one part of the chloroplast to another.



3. Choose the right answer:

I. Which of the following is a colloidal system?

- a) mud
- b) gasoline
- c) blood
- d) a mixture of sugar and water

II. From the epidermis to the endodermis there are several pathways in which water can flow from them

- a) Osmotic pathway
- b) Symplast pathway
- c) Diffusion pathway
- d) All the mentioned above

III. In a C4 plant, ----- structure enter in the photosynthesis process.

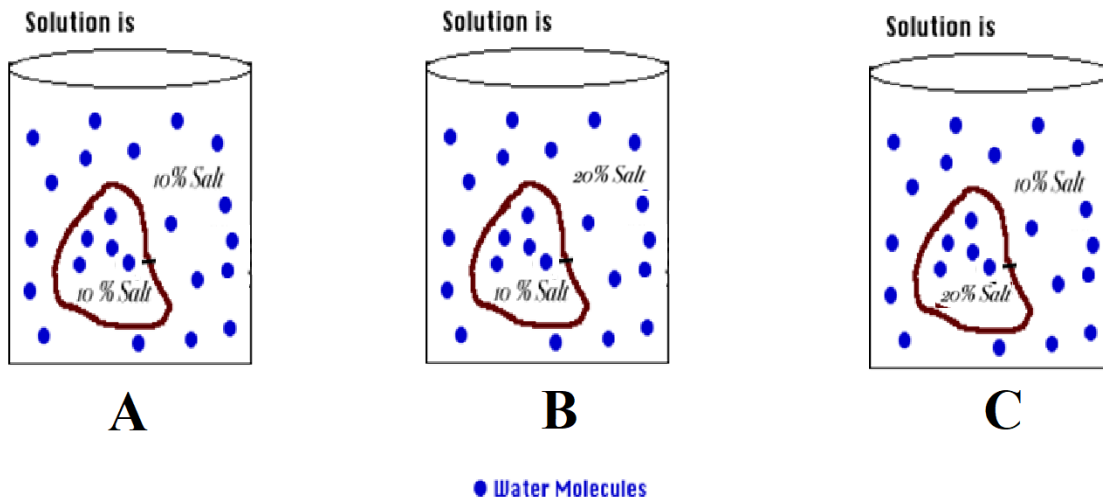
- a) Bundle sheath
- b) Epidermis
- c) Phloem
- d) Guard cells

IV. Mineral nutrients acquired by plants through

- a) Artificial: called foliar application.
- b) Associations with mycorrhizal fungi.
- c) Uptake by the roots.
- d) All the mentioned above.

4. From which direction will the water flow through the membrane according to the following illustration.

(Hypotonic solution, water moves into the cell – Isotonic solution, water moves in both directions – Hypertonic solution, water moves out of the cell)



A.

B.

C.

5. Read the sentence carefully and determine whether it is true or false:

- a) pH affects the growth of plant roots and soil microbes.
- b) Plants require nine macronutrients and at least eight micronutrients.
- c) Light dependent reaction of photosynthesis takes place in the chloroplast stroma.
- d) An essential nutrient is a chemical element that is required for a plant to grow from a seed and complete the life cycle.

- e) Exocytosis is a process of taking material into the cell by means of infoldings, or pockets, of the cell membrane (usually putting them into a vacuole).
- f) NADPH is the energy coin in the cell.
- g) Passive Transport - requires cell energy, examples: Diffusion, Facilitated diffusion and Osmosis.
- h) C3 plants are at a disadvantage in hot, dry climates

**(BONUS QUESTION)**

- **Explain why a mixture of sand and water can be separated by filtration, but a mixture of salt and water cannot?**

**BEST REGARDS**