

## WSU BIOLOGY 106 EXAM 2 ACTUAL EXAM 2 LATEST VERSIONS (VERSION A & B) 2023-2024 ACTUAL EXAM 240 QUESTIONS AND CORRECT DETAILED ANSWERS WITH RATIONALES | ALREADY GRADED A+

### VERSION A

You find a green, plant-like looking organism in a lake. You have a microscope and can carefully analyze it. What criteria would point out that you exclude it is a green algae you investigate?

1. after cell division, a phragmoplast
2. you find multicellular dependent embryos
3. the plasma membrane contains rings of cellulose-synthesizing complexes
4. the organism has multicellular gametangia

a. 1+2

b. 2+3

c. 3+4

d. 1 +4

e. 2+4 - ANSWER- e. 2+4

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a sporangium is normally?

a. haploid

b. diploid

c. zygoic - ANSWER- b. diploid

What does the term heterospory means? - ANSWER- Production of spores of two different sizes and sexes by the sporophytes of land plants

What defines an ovule?

- a. It comprises a female gametophyte, a microsporophyte, and a seed
- b. It comprises a megasporangium, megaspore, and their integuments**
- c. It is an egg cell, surrounded by an endosperm, and a megasporangium
- d. It is the basic structure of the later flower, therefore contains sepals and petals, as well as a stigma to receive the pollen - ANSWER- b. It comprises a megasporangium, megaspore, and their integuments

What are the advantages of having reduced gametophytes? - ANSWER- **Moist reproductive sporophyte provides protection from UV and drying out**

What are the evolutionary advantages of a seed? - ANSWER- **Seeds are multicellular providing the seed coat, can remain dormant, and have supply of stored food**

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How does the role of the sporophyte change if you go from lower land plants (bryophytes) to higher land plants (e.g. gymnosperms or angiosperms)? - ANSWER- **Sporophytes in lower land plants is more for reproductive purposes**

Flower

(a) What is the difference between an ovary and an ovule? - ANSWER- **The ovary holds the ovule**

Flower

(b) In pollination, what part of the flower receives the pollen?

a. style

b. sepal

c. ovule

**d. stigma** - ANSWER- d. stigma

## Flower

(c) What are petals good for? - ANSWER- **Aid in attracting pollinators**

## Fruits

(a) If you look at a flower and a fruit, what parts of a flower can be found in a fruit? - ANSWER- **The ovary**

## Fruits

(b) Why do gymnosperms don't have fruits?

a. They have an ovary which does not allow a fruit to develop

b. They lack the vascular tissue which is a requirement for fruit development

**c. They have exposed/naked seeds and do not flower**

d. They have no ovules and therefore no fruits - ANSWER- c. They have exposed/naked seeds and do not flower

## Double Fertilization

(a) What does the term 'double fertilization' means, and why does that not exist in Gymnosperms? - ANSWER- **Union of two sperm cells with different nuclei of the female gametophyte. It doesn't exist in gymnosperms because they do not develop an endosperm**

## Double Fertilization

(b) What tissues result from the double fertilization and what is their ploidy grade (e.g. haploid, diploid, or triploid) after mitosis? - ANSWER-

**Endosperm and they become triploids because they go through three stages**

What different ways have evolved how plants can disperse their seeds -

ANSWER- **Dispersal through water, wind, and animals**

What is the evolutionary advantage of fruit development. - ANSWER- **Seeds are more protected; some fruits develop hairs to help with the dispersal into the wind**

Describe in your own words what the difference is between breeding and genetic engineering?

- a. Genetic engineering allows the transfer of DNA material among completely different species, which is in most cases not possible for classical breeding
- b. Classical breeding often requires long time periods before a successful plant line has been established, genetic engineering can significantly speed up this process
- c. Genetic engineering can introduce completely new traits into plants which to that extend is often impossible to accomplish by classical breeding.
- d. only one of the above answers is correct

**e. answers (a), (b), and (c) are correct** - ANSWER- e. answers (a), (b), and (c) are correct

What does the term 'transgenic' means? - ANSWER- **Pertaining to an organism whose genome contains DNA introduced from another organism of the same or different species**

How does artificial selection work? - ANSWER- **Humans modify a species by selecting individuals that posses desired traits**