

## Final Evaluation

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1. General rule of thumb for apoptosis is that it is more commonly seen at higher levels of toxicant exposure while necrosis occurs more frequently at relatively lower levels of toxicant exposure. *True or False?*

True

False

**Answer**

False

2. Neoantigen formation results when a xenobiotic or its metabolite binds to a larger protein to form a novel molecule that elicits an immune response. Molecules that trigger this immune response are called:

Haptens

Free radicals

Electrophils

Poisons

**Answer**

Haptens

3. Lipid peroxidation occurs when an \_\_\_\_\_ compound steals an electron from a membrane phospholipids resulting in the production of a fatty acid radical.

Electrophobic

Hydroxyl radical

Electrophilic

Hydrophilic

**Answer**

Electrophilic

4. Electron transfer can result in oxidation of some endogenous macromolecules and formation of \_\_\_\_\_ such as superoxide ion ( $\bullet\text{O}_2^-$ ) and hydroxyl radical ( $\text{HO}\bullet$ ).

Enzymes

Hormones

Free radicals

Proteins

**Answer**

Free radicals

5. Upon exposure of human skin with leaves of poison ivy, the toxin found in this plant binds to membranes on skin cells to stimulate an immune response resulting in blistering rash. This toxin is known as:

Urushiol

Ricin

Tetrodotxin

Pyrethrins

**Answer**

Urushiol

**6. Which of the following covalently binds to the acetaminophen metabolite N-Acetyl-P-Benzoquinone Imine (NAPQI) to detoxify it?**

- N-acetylcysteine
- Superoxide dismutase
- Catalase
- Amylase

**Answer**

N-acetylcysteine

**7. Differences between Necrosis and Apoptosis include the following EXCEPT:**

- Necrosis is a degenerative process while Apoptosis is an active process
- Necrosis triggers inflammatory response while Apoptosis does not incite inflammatory response
- Necrosis results in loss of energy while Apoptosis does not result in loss of energy
- Necrosis is an active process while Apoptosis is a degenerative process

**Answer**

Necrosis is an active process while Apoptosis is a degenerative process

**8. A regenerative response that results in an increase in cell size is termed \_\_\_\_\_.**

- Hypertrophy
- Hypoplasia
- Hyperplasia
- Atrophy

**Answer**

Hypertrophy

**9. \_\_\_\_\_ helps to terminate lipid peroxidation when present in sufficient quantities.**

- Vitamin E
- Hydroxyl radical
- Vitamin A
- Oxygen

**Answer**

Vitamin E

**10. An “adduct” is the product of an irreversible bond between the toxicant and target molecule; this type of binding is known as:**

- Noncovalent binding
- Covalent binding
- Hydrogen abstraction
- Ionic binding

**Answer**

Covalent binding

**11. An example of decreasing the reactivity of a target site to a toxicant is describe as:**

- Binding of toxicant to target receptors
- Downregulation of toxicant target receptors
- Increased metabolism of alcohol within the stomach and liver
- Stimulation of membrane receptors

**Answer**

Downregulation of toxicant target receptors

**12. 10% of acetaminophen bioactivated by Cytochrome P450 in the liver to a toxic metabolite is called:**

- Superoxide dismutase
- N-acetylcysteine
- N-acetyl-P-Benzoquinone Imine (NAPQ1)
- Superoxide ion

**Answer**

N-acetyl-P-Benzoquinone Imine (NAPQ1)

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