

## **Altered Cellular and Tissue Biology**

1. Identify and describe under which conditions the following cellular adaptations occur: atrophy, hypertrophy, hyperplasia, dysplasia, and metaplasia.
2. Identify and describe the mechanisms of cellular injury for the following causes: hypoxia, chemicals, free radicals, infectious agents, asphyxial injuries, immunological and inflammatory responses, genetic factors, nutritional imbalances, and physical trauma.
3. Describe the characteristics of the following intentional and unintentional injuries: blunt force injuries, sharp force injuries, and gunshot wounds.
4. Identify the cause and resulting manifestation of cellular damage due to the following cellular accumulations: water, lipids and carbohydrates, glycogen, proteins, pigments, calcium, and urate (uric acid).
5. Define necrosis and identify the five major types of cellular necrosis.
6. Identify and describe the mechanism and resulting damage of coagulative, liquifactive, caseous, fat, and gangrenous necrosis.
7. Compare and contrast cellular necrosis with apoptosis.
8. Describe the two general theories of aging and provide examples of the cellular changes supporting these theories.
9. Characterize somatic death and its manifestations