1. The epidermis (epithelium of the cutaneous membrane or skin) is stratified squamous epithelial tissue that has a tough, keratinized outer layer. Explain why this epithelial tissue is much better suited to protect the external surface of the body than a layer of simple columnar, or simple cuboidal epithelium would.

2. The importance of epithelial cell regeneration is dramatically illustrated by recovery from cholera. A toxin from the cholera vibrio kills the intestinal epithelium. Resulting loss of bodily fluid from the uncovered mucosa leads to intense diarrhea, massive dehydration, and death within a few days. However, if patients can be kept hydrated for those few days, epithelial replacement by stem cell division will restore normal function.

- Which epithelial tissues are most likely to be affected by cholera? Where are these tissues found? What is their general function?
- Epithelial replacement is completed by the body’s own natural stem cells. Explain how stem cells are used by an individual in their own body. (Remember we are not talking about stem cell research)

3. Bronchopneumonia is a type of pneumonia that is localized to the bronchioles and surrounding alveoli of the lungs. It is common in infants and elderly patients. One of the new lab technicians mislabeled the epithelial sample that you took from one of your younger patients, Sammy, with some symptoms of bronchopneumonia. In order to figure out which sample was taken from Sammy you have to distinguish between 9 epithelial samples. What distinguishing characteristics will you look for to find Sammy’s sample? (Be very specific!) What epithelial tissue will you be looking for?

4. Currently, 400 million Americans suffer from some kind of bladder disease. One of the procedures for artificial bladder replacement involves taking a piece of the patient’s own small intestine and reshaping it to the size of their own bladder. There has been some success with this procedure, but many patients end up with infections or bladder stones.

- Although moderately successful, why are there so many problems with this tissue replacement?
- What type of epithelial tissue are you replacing?
- What type of epithelial tissue are you replacing it with?
- Talk about 2 qualities of the epithelial tissue found in the urinary bladder that make it hard to replace.

5. Among other things, one of the main symptoms of hypohidrotic ectodermal dysplasia, is a patient’s inability to sweat. Which epithelial tissue is malfunctioning in this disorder? What is this tissue’s main structure and function? Explain.

6. Ciliary dyskinesia is a rare genetic birth defect of the cilia in the respiratory tract. Cilia display abnormal motion or are unable to move. What type of epithelial tissue does ciliary dyskinesia affect? What symptoms will a sufferer of ciliary dyskinesia display?

7. Germinal epithelium is involved in producing egg cells in females. Which type of epithelial tissue is this? Where would it be found? What are the general functions of this tissue?

8. Systemic lupus erythematosus (often just called Lupus) is a condition that mainly affects younger women. The major symptom is chronic (persistent, long-lasting) inflammation that affects either most or all of the connective tissue proper in the body. Veronica has tested positive for Lupus and comes to ask if the disease will have localized effects in her body or if it will be widespread. What do you, as her physician, tell her? Explain

9. Tom injured one of the tendons surrounding his ankle while backpacking in Yosemite during a family vacation last summer. The tear was considered a third degree sprain and Tom came in to ask how long it would take to heal. What do you, as his physician, tell him? Explain.