Eyes Without a Face – A case study in Eye Anatomy

Instructions: Read each part of the case study and answer the questions that follow each part. Write your answers in the spaces provided below.

Part 1 - "A Picturesque Day"

1. What function does a cornea have in vision?
2. Can a cornea be repaired after sustaining damage? Explain.
3. What is a cornea transplant and how successful is the procedure?

Part 2 - "New Hope"

1. Why do some corneal transplants fail?
2. What is a stem cell?
   1. What is the difference between a totipotent, pluripotent, multipotent and unipotent stem cell?
3. How do adult and embryonic stem cells differ?
4. What type of stem cell is used to reconstruct the cornea in this procedure, why are they important, and what problems have been encountered in using this type of stem cell?
5. How do stem cells normally function in the cornea?
6. What are some major concerns with adult stem cell use?

Part 3 - "A Stem Cell Solution"

1. What is the limbus, where is it located and what impact does it have when it is damaged?
2. Where do the amniotic membranes come from, why are they used in culturing stem cells, and what problems could be encountered through their use?
3. What is the difference between a keratolimbal allograft and an autologous graft?
4. What advantage does the keratolimbal allograft procedure have over keratoplasties?