

Physics 221
Exam 2
Take home portion

You are encouraged to discuss this material with your classmates but are required to do your own work.

Directions: Use your own words to demonstrate your understanding of the concepts. Direct quotes from the sources below are not acceptable unless they are followed by an interpretation in your own words. For each question, describe in detail as if you are talking with someone who has not taken this class. All answers must explain “how” and “why” they are true. All answers must be grammatically correct and typed, with the exception of any equations or diagrams.

1. Diving masks often have lenses built into the mask for divers that need corrective lenses. Explain why in this case the outer surface is flat and only the inner surface is curved. (hint: look in your text book)

Learn about Corneal Refractive Therapy (CRT) (a type of Orthokeratology) here:

<http://www.paragoncrt.com/consumers/index.asp> (read overview and how it works tabs) and

<http://www.nsvc.com/services-crt.html>

and for more detail you may be interested in: <http://en.wikipedia.org/wiki/Orthokeratology>

2. How does Corneal Refractive Therapy (CRT) work? Describe what it does to your eyes to allow clear vision without contacts or glasses. Include a diagram. Also describe how long it takes once treatment begins before a person can see clearly. What are some of the most common drawbacks to CRT that one needs to consider?
3. Is CRT used to treat myopia, hyperopia and/or astigmatism? Why?
4. Explain how CRT can be used to permanently reduce myopia in children.

Learn about LASer In Situ Keratomileusis (LASIK) here:

<http://www.youtube.com/watch?v=7PJ391MDtpo>,

<http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/SurgeryandLifeSupport/LASIK/default.htm>

and <http://www.youtube.com/watch?v=O4kDC4sZ5Jg> for more detail you may be interested in:

<http://en.wikipedia.org/wiki/LASIK>

5. How does LASIK work? Describe what it does to your eyes to allow clear vision without contacts or glasses. Include a diagram. Also describe how long it takes once treatment begins before a person can see clearly. What are some of the most common side effects that one needs to consider.
6. Who is not a candidate for CRT and who is not a candidate for LASIK? Include age restrictions for candidates as well as physical conditions which make poor or unacceptable candidates. Explain specifically why this is the case for each example you provide.