St John Baptist De La Salle Catholic School, Addis Ababa
Grade 10B Physics Final Examination
Summer Term

June, 2023

Name:_____   Section:____   Time Allowed: **25 minutes**

Multiple Choice Questions

1. When light travels from glass into air, which of the following statements is accurate?

    A. The wavelength decreases, and the speed decreases.

    B. The wavelength decreases, and the speed increases.

    C. The wavelength increases, and the speed decreases.

    D. The wavelength increases, and the speed increases.

2. The speed of light in a given medium is about $2.0 \times 10^8 m/s$. What is the refractive index of this medium?
   A. 1   B. 2   C. 2.5   D. 1.5

3. How accurately (in nanoseconds) must you be able to measure the echo time to an airplane 12.0 km away to determine its distance within 15.0 m?
   A. 50   B. 100   C. 80   D. 66.7

4. Light is incident into air from a medium at an angle of 50^0. If the refractive index of the the medium is 2, what happens to the light ray?
   A. Undergoes refraction   B. 50^0 is the critical angle
   C. Total internal reflection   D. None of the above

5. Assume a person is swimming inside a pool of water. When watching an object outside the pool, does it look nearer or farther?
   A. It is the same distance   B. It looks nearer
   C. It looks farther   D. None of the above

Workout Problems

6. Using the concepts of RBG vision and Raleigh scattering explain why we perceive of the sky as being blue?

7. A 12cm tall object is placed 15 cm away from a 5 cm focal length convex lens.

- What is the distance between the image and the object?

- What is the magnification by the lens? What about the power?

- What is the height of the image?

- List and explain why whether the image is real/virtual and upright/inverted.