

St John Baptist De La Salle Catholic School, Addis
Ababa

Grade 11 Physics Midterm Examination
1st Quarter

October, 2023

Notes, and use of other aids is NOT allowed. Read all directions carefully and write your answers in the answer sheet . To receive full credit, you must show all of your work.

Name:_____ Roll Number:_____ Section:____Time Allowed: **60 minutes**

Multiple Choice Questions

1. When light travels from medium A to medium B, it refracts towards the normal. Which of the following is true?
 - A. Light travels faster in medium B than medium A.
 - B. The wavelength of light in medium B is larger than its wavelength in medium A.
 - C. The frequency of light in medium B is larger than its frequency in medium A.
 - D. The refractive index of medium B is greater than that of medium A's.

Workout Problems

2. Calculate the ratio of the highest to lowest frequencies of electromagnetic waves the eye can see, given the wavelength range of visible light is from 450 nm to 760 nm. Would we be able to observe and study human cells which have an average diameter of about $100\mu m$? Why?

Extra credit problems

3. A light ray entering an optical fiber surrounded by air is first refracted and then reflected as shown in the figure below. Show that if the fiber is made from crown glass($n = 1.52$), any incident ray will be totally internally reflected.

Answer Sheet

- | | | |
|---------|----------|----------|
| 1._____ | 6._____ | 11._____ |
| 2._____ | 7._____ | 12._____ |
| 3._____ | 8._____ | 13._____ |
| 4._____ | 9._____ | 14._____ |
| 5._____ | 10._____ | 15._____ |