Solution

SNC2D

Task - Introduction to Optics – What is Light?

Use your notes and the internet to answer the following questions about light

1. a) Which colour in the visible spectrum has the longest wavelength? How many nanometers is the wavelength?

RED – 625nm – 700nm

b) **Which** colour in the visible spectrum has the shortest wavelength? How many nanometers is the wavelength?

VIOLET – 380 – 450 nm

c) List the colours of the visible spectrum in their order and the acronym to correctly remember them.

VIBGYOR or ROY G BIV

Complete the chart provided.

Type of Electromagnetic Wave	Properties (list wavelength range, frequency range, speed in a vacuum)	Examples/ Uses
Radio waves	Wavelength Range: 1mm – 100km Frequency Range: 3kHz – 300GHz Speed: 3×10^8 m/s	- microphone (wireless) - music radio - satellite radio
Infrared	Wavelength Range: 700nm – 1mm Frequency Range: 430THz – 300GHz Speed: 3×10^8	- night vision - surveillance - thermal imaging
Visible Light	Wavelength Range: 400nm – 700nm Frequency Range: 430THz – 790THz Speed: 3×10^8 m/s	- sight - photography
Ultraviolet	Wavelength Range: 10nm – 400nm Frequency Range: 30PHz – 790THz Speed: 3×10^8 m/s	- forensics - tanning beds
X-Rays	Wavelength Range: 0.01nm – 10nm Frequency Range: 30EHz – 30PHz Speed: 3×10^8 m/s	X ray (hospital) radiology space detection
Gamma Rays	Wavelength Range: < 0.01nm Frequency Range: > 30EHz Speed: 3×10^8 m/s	- nuclear medicine - scanning / detection –