Waves – Light and Sound Quiz 4

Properties of waves

longitudinal waves → move in the ___________________ as the medium movement
transverse waves → move ___________________ to the medium movement
amplitude → ___________________ unit: metre (m)
frequency → ___________________, unit: hertz (Hz)
wavelength → ___________________, unit: metre (m)
period → ___________________
waves transfer ___________________ without transferring ___________________

wave speed = ___________________

frequency = 1/ ___________________

waves can be ___________________ (spread out) through gaps or when they pass an edge, and
the extent of diffraction depends on the _______________and the physical dimension of the gap

The electromagnetic spectrum

electromagnetic spectrum goes from __________ wavelength -- radio, microwave, infra-red,
visible, ultraviolet, X-ray and gamma rays -- _______________ wavelength

electromagnetic waves travel at the same _______________ in free space

uses of electromagnetic radiations,

• _______________waves: broadcasting and communications
• _______________: cooking and satellite transmissions
• _______________: heaters and night vision equipment
• _______________: optical fibres and photography
• _______________: fluorescent lamps
• _______________: observing the internal structure of objects and materials and medical applications
• _______________: sterilising food and medical equipment

detrimental effects of excessive exposure of the human body to electromagnetic waves

• _______________: internal heating of body tissue
• _______________: skin burns
• _______________: damage to surface cells and blindness
• _______________: cancer, mutation
Light

light waves are ______________ waves which can be reflected, ______________ and ________
the angle of incidence equals the angle of ______________
refractive index $n =$ ______________
______________ ______________ is used in transmitting information along optical fibres
when the angle of incidence is greater than the ______________ there is t___ i____ r____
the relationship between critical angle $c$ and refractive index $N$ ______________

sound

sound waves are ______________ waves which can be reflected, ______________ and __________
the frequency range for human hearing is ______________ Hz – ______________ Hz
an ______________ and microphone can be used to display a sound wave by converting it to an electrical signal
the pitch of a sound depends on the ______________ of vibration
the loudness of a sound depends on the ______________ of vibration