

3. Choose ONE wavelength from the above table and give two applications of that wavelength of radiation in scientific or other fields. (10 points)

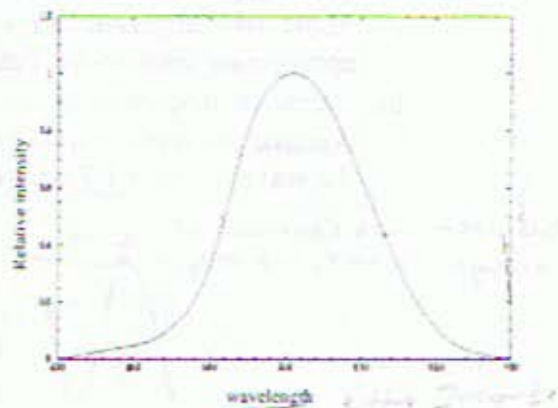
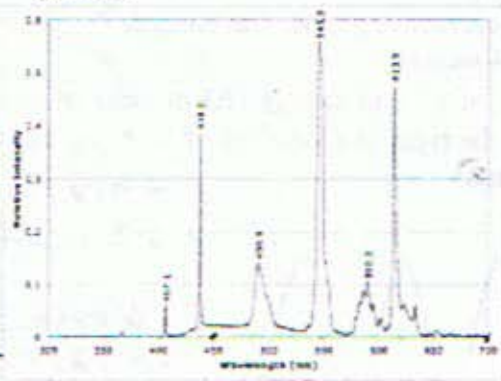
Radio waves used for T.V, satellite dish

microwaves → cell phones + microwaves.

UV → photolysis of molecules.

Photochemical damage of DNA

4. Consider the following two spectra, taken for two types of light sources. For each bulb, explain how the light is produced using no more than three normal-length sentences per bulb. Be as specific as possible – we are interested in the physical process(es) going on inside each bulb that lead to light being produced. (10 points)



fluorescent light:

electricity excites Hg produces short λ (UV) causes phosphor to fluoresce producing visible light; uses less power for same amount of light

phosphorescence: valence electrons

jump to orbitals & remain trapped for milliseconds to days eventually drops

back, they will decay & emit, the effect is a sustained glow light

that lasts from milliseconds to days.

Visible light produced.

Incandescence light bulbs act like Blackbody which emits frequencies with spectral distribution depending on its temperature, giving electricity to tungsten (optimum resistance to produce max. heat) it will emit radiation in visible light region.