



































































3. Explain why geometric optics fail to adequately account for the phenomena of diffraction, interference and polarization.
4. Explain, qualitatively, diffraction and interference, using the wave model of light.
5. Explain how the results of Young's double-slit experiment support the wave theory of light.
6. Solve double-slit problems and diffraction grating problems.
7. Explain, qualitatively, polarization in terms of the wave model of light.
8. Demonstrate how Snell's law offers support for the wave model of light.

#### D. Electromagnetic Spectrum

**Outcome:** *Describe the electromagnetic spectrum as a continuous range of electromagnetic waves with specific characteristics and similar properties. (5)*

1. Predict the effects of changing one, or a combination, of variables in the relationship  $v = f\lambda$  on any one of the remaining variables.
2. Describe the range of the electromagnetic spectrum from long, low frequency radio waves, through microwaves, infrared, visible, ultraviolet and X-rays, to very short, high frequency gamma rays.
3. Explain the difference between AM and FM radio waves in terms of amplitude and frequency modulation.
4. Compare, to each other, the various constituents of the electromagnetic spectrum on the basis of source, frequency, wavelength, energy and effect on living tissue.
5. Describe, qualitatively, the phenomena of reflection, refraction and polarization of visible light.
6. Compare, the characteristics of radiation from any region of the electromagnetic spectrum with those of visible light.
7. Calculate any variable in the equation  $v = f\lambda$ , given two of the three variables of frequency, wavelength and speed of electromagnetic propagation.
8. Perform and evaluating experiments that investigate reflection and refraction of visible light.
9. Perform an experiment to demonstrate total internal reflection.
10. Perform an experiment to demonstrate the polarization of visible light.
11. Draw diagrams to illustrate amplitude and frequency modulated radio waves.

**ENTRANCE LEVEL COMPETENCIES IN READING COMPREHENSION**  
(Numbers in parentheses indicate which Entrance Examination(s) test for this competency)

**A Literal Comprehension**

**Outcome:** *Identify facts in a written passage. (1,2,3,4,5)*

**B Comprehension Of Concepts**

**Outcome:** *Identify the concepts in a written passage. (1,2,3,4,5)*

**C. Application Of Concepts**

**Outcome:** *Apply the concepts in a written passage to practical situations. (1,2,3,4,5)*

**D. Analysis Of Concepts**

**Outcome:** *Analyse the concepts contained in a written passage. (1,2,3,4,5)*

**E. Making Judgements**

**Outcome:** *Make judgements based on information contained in a written passage. (1,2,3,4,5)*

Alberta Apprenticeship and Industry Training

**7702**