

6 (a) Monochromatic light is diffracted by a diffraction grating. By reference to this, explain what is meant by

(i) diffraction,

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.....[2]

(ii) coherence,

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.....[1]

(iii) superposition.

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.....  
.....[1]

(b) A parallel beam of red light of wavelength 630 nm is incident normally on a diffraction grating of 450 lines per millimetre.

Calculate the number of diffraction orders produced.

number of orders = ..... [3]

(c) The red light in (b) is replaced with blue light. State and explain the effect on the diffraction pattern.

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.....  
.....[3]