Multiple choice questions QUANTUM ELECTRONICS
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Module 1: Multiple choice questions:

1. 1. A plane wave propagates along a direction with the unit vector $\hat{\kappa} = \frac{\sqrt{3}}{2}\hat{y} + \frac{1}{2}\hat{z}$ in a uniaxial medium. The unit vector along the direction of the $\vec{D}$ of the extraordinary wave is
   a) $\hat{n} = -\frac{1}{2}\hat{y} + \frac{\sqrt{3}}{2}\hat{z}$
   b) $\hat{n} = \frac{1}{2}\hat{y} + \frac{\sqrt{3}}{2}\hat{z}$
   c) $\hat{n} = -\frac{1}{2}\hat{y} - \frac{\sqrt{3}}{2}\hat{z}$
   d) $\hat{n} = \hat{x}$

2. When a light wave propagates in a uniaxial medium
   a) SOP changes if the propagation direction is along the optic axis
   b) SOP changes for any direction of propagation
   c) SOP changes if the propagation direction is other than along the optic axis
   d) SOP does not change for any propagation direction

3. In a biaxial medium with n_x = 1.56, n_y = 1.59 and n_z = 1.60 a circularly polarized wave at a wavelength of 600 nm propagates along the z-axis.
   a) The state of polarization will not change.
   b) The wave will become linearly polarized after travelling a distance of 15 μm.
   c) The wave will become linearly polarized after travelling a distance of 5 μm.
   d) The wave will get depolarized

Answers of module 1 MCQs:

A1: [Ans (a)]

A2: [Ans (c)]

A3: [Ans (d)]