[Question - 1 Section - 2]

Answer

Critical Frequency :—

=> Critical frequency is the highest magnitude of frequency above which the waves penetrate the ionosphere and below which the waves are reflected back from the ionosphere. It is denoted by "f_c". The value is not fixed and it depends upon the electron ~~dens~~ density of the ionosphere.

=> If the frequency of a wave transmitted vertically is increased, a point will be reached where the wave will not be refracted sufficiently to curve back to earth and if this frequency is high enough then the wave will penetrate the ionosphere and continue on to outer space. The highest frequency that will be returned to earth when transmitted vertically under given atmospheric conditions is called the critical frequency.

$$[f_c = 9\sqrt{N}]$$

=> The critical frequency of a high pass RC filter occurs when $X_c = R$ and can be calculated using the formula —

$$\left[f_c = \frac{1}{2\pi RC}\right]$$