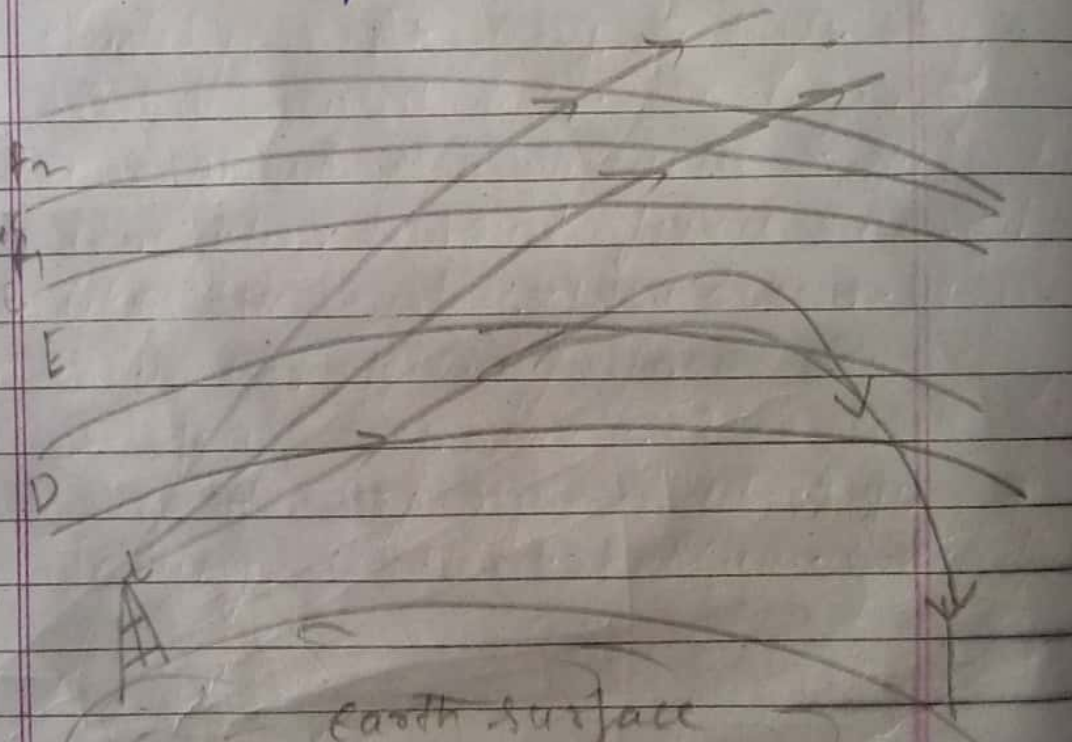
Date
Page

Answer 02 Section 4

Mechanism of refraction in skywave propagation:

Skywave propagation refers to the propagation of radio wave reflected or refracted back toward earth from the ionosphere an electrically charged layers of the upper atmosphere. Earth's surface (ground or water) then diffusely reflects the incomming wave back towards the ionosphere.



As a result of skywave propagation, a signal from a distant AM broadcasting station, a short wave station or during sporadic E propagation conditions. a distant VHF FM or TV station can sometimes be received as clearly as local stations. most long distance short wave radio communication between 3 and 30 MHz - is a result of sky wave propagation.

Sky wave propagation is distinct from tropospheric scatter; an alternative method of achieving over the horizon transmission at higher frequencies.

Ground wave propagation where radio waves travel along earth's surface without being reflected or refracted by the atmosphere - the dominant propagation mode at lower frequencies.

Line of sight propagation, in which radio waves travel in a straight line, the dominant mode at higher frequencies.

☆ Low-angle skywave :- The ionosphere is a region of the upper atmosphere from about 80 km to 1000 km in altitude where natural

Date
Page

air is ionized by solar photons and cosmic rays.

★ Near-vertical skywaves :→ Skywaves directed vertically or almost vertically are called NVIS for Nearvertical Incidence. At some frequencies, generally in the lower shortwave region the high angle skywave will be reflected directly back towards the ground.

★ Fading :→ At any distance sky wave will fade. The layer of ionospheric plasma with sufficient ionization is not fixed but undulates like the surface of the ocean. Varying reflection efficiency from this changing surface can cause the reflected signal strength to change, causing fading in the shortwave broadcast.