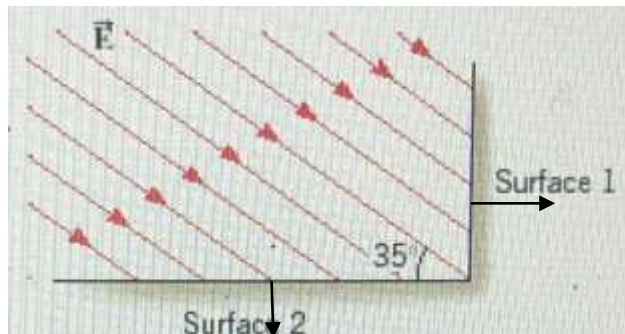Q- Figure shows top view of two surfaces intersecting at right angle. Surface 1 has an area of 1.5 m² and that of the surface 2 is 3.3 m². Uniform electric field E of strength 170 N/C is making angle 35° with surface 2. Find electric flux through
(a) Surface 1
(b) Surface 2

The electric flux of a field E through a surface A is given by

$$\emptyset = \vec{E}.\vec{A} = EA \cos\theta$$

Here θ is the angle between the direction of the field and the area vector.
The direction of an area vector is given by the outward normal and thus indicated as in figure.

(a) The area vector of surface 1 is making angle 35° with the field and thus the flux through it is given by

$$\emptyset_1 = \vec{E}.\vec{A}_1 = 270 * 1.5 * \cos 35^o = 331.8 \ Nm^2/C$$

(b) The area vector of surface 2 is making angle 55° with the field and thus the flux through it is given by

$$\emptyset_2 = \vec{E}.\vec{A}_1 = 270 * 3.3 * \cos 55^o = 511.1 \ Nm^2/C$$