Introducing a point charge near a Gaussian surface. A spherical surface S is placed in free space concentrically with another sphere that is uniformly charged over its volume, and the radius of S is larger than that of the charged sphere. Then, a point charge Q, where Q equals the total charge of the sphere, is introduced in the system as in Fig.Q1.12. Let Ψ_E and E denote the outward flux of the electric field intensity vector through S and the electric field intensity at the point A in the figure, respectively. Which of the two quantities change their value after the point charge is introduced?

(A) Ψ_E only.
(B) E only.
(C) Both quantities
(D) None of the quantities.

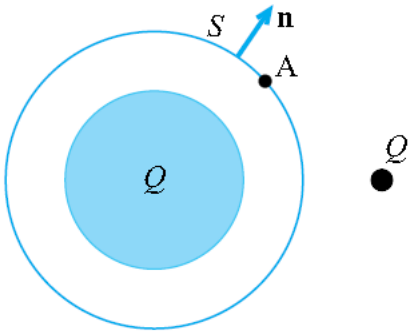

Figure Q1.12 Closed concentric spherical surface S about a sphere with a uniform volume charge, and a point charge Q outside S; for Question 1.16.

Solution: (B) *Answer:* (B)