**Instructions**

1. **The test contains two questions**

Q1: Calculate the total electric flux through the paraboloidal surface due to a constant electric field of magnitude

*E* 0 in the direction shown in Figure



5 Marks

**Q2.** A cone with base radius *R* and height *h* is located on a horizontal table. A horizontal uniform field *E* penetrates the cone, as shown in Figure P24.9. Determine the electric flux that enters the left-hand side of the cone.



5 Marks

Q3: A sphere of radius *R* surrounds a point charge *Q*, located at its center. (a) Show that the electric flux

through a circular cap of half-angle is .





10 Marks