**((Q3)** The magnetic structure of a synchronous machine is shown schematically in Fig. 2. Assuming that rotor and stator iron have infinite permeability (), find the air-gap flux  and flux density Bg. For I = 10 A, N = 1000 turns, g = 1 cm, and Ag = 2000 cm2. Calculate the magnetic stored energy in the magnetic circuit.



Fig.2