Std 12 A (Physics)	Unit Test	F.M.- 20

Time duration – 45 minutes

1. Write the unit of electric potential in terms of the basic unit of SI. [1]
2. What will be the nature of electric potential at a place where the electric field is zero. [1]
3. Write formulae for equivalent capacitance of a (i)series combination (ii)parallel combination of capacitances $C_1, C_2, \ldots\ldots C_n$. [2]
4. A parallel plate capacitor having vacuum between the plates has capacitance C. What will be the capacitance when (i)the distance d between the plates is doubled, (ii)a sheet of thickness t and dielectric constant K is placed between the plates? (Assume t=d). [2]
5. Obtain an expression for the electric potential at a point at a distance r from a point charge Q. [3]
6. What is meant by electrical capacitance of a conductor? Derive the formula for the capacitance of an isolated metallic sphere. [3]
7. An α-particle and a proton are accelerated through the same potential difference. Find the ratio of velocities and linear momenta acquired by them. [4]
8. Assuming the earth as an isolated spherical conductor of radius 6400km. Calculate its capacitance. [4]