Khoreece Mendoza  
HW 1

1) The voltage between two parallel plates separated by a distance of 5 mm is 200 V. Determine the electric field intensity

2) The Voltage between two parallel plates separated by a distance of 0.4 inch is 60 V. Determine the electric field intensity.

3) The electric field intensity in the region between two parallel plates separated by a distance of 4 cm is 2 kV/m. Determine the voltage between the plates.

4) The electric field intensity in the region between two parallel plates separated by a distance of 8 mm is 200 V/mm. Determine the voltage between the plates.

5) A direct current of 5 A is flowing in a conductor. Determine the magnetic field intensity at a distance of 3 m from the conductor.

6) A direct current of 40 mA is flowing in a conductor. Determine the magnetic field intensity at a distance of 5 ft. from the conductor.

7) For the parallel plates of Problem 3), determine the electric flux density if the dielectric is polyethylene (.

8) For the parallel plates of Problem 4), determine the electric flux density if the dielectric is air.

9) For the current-carrying conductor of Problem 5), determine the magnetic flux density at a distance of 3 m from the conductor if the medium is air.

10) For the current-carrying conductor of Problem 6), determine the magnetic flux density at a distance of 5 ft from the conductor if the medium is air.

11) The electric flux density normal to a rectangular surface with dimensions 8 m x 75 cm is 4 . Determine the value of the electric flux across the area.

12) The electric flux density normal to a circular surface with a diameter of 3m is 8 . Determine the value of the electric flux across the area.

13) The magnetic flux density normal to a circular surface with a radius of 5m is 4. Determine the value of the magnetic flux across the area.

14) The magnetic flux density normal to a rectangular surface with dimensions 30 cm x 60 cm is 12. Determine the value of the magnetic flux across the area.

15) A current of 8 A is uniformly distributed over a rectangular conductor with dimensions 5 mm x 4 mm. Determine the current density.

16) A current of 4 A is uniformly distributed over a circular conductor with a dimensions 3 cm. Determine the current density.

17) Assume that the conductivity for the conductor of Problem 15) is 5 MS/m. Determine the electric field intensity.

18) Assume that the conductivity for the conductor of Problem 16) is S/m. Determine the electric field intensity.

19) The rms magnitude of the magnetic field of a plane wave in air is . Assuming that E is in the positive x-direction, determine the following for a circular surface of diameter 50 m in the x-y plane over which the fields are constant:

(a)

(b)

(c) Total power transmitted through area

20) The rms magnitude of the magnetic field of a plane wave in sea water ( is . Assuming that H is in the positive y-direction, determine the following for a square surface with sides of 15 m each in the x-y plane over which the fields are constant:

(a)

(b)

(c) Total power transmitted through area

21) In a lossless dielectric medium, the rms electric and magnetic field intensities are and . Determine the following:

(a) Intrinsic impedance

(b) Power density

(c) Dielectric constant