North East University Bangladesh
Department of Computer Science & Engineering
Mid Semester Examination, Spring 2022
Program: B.Sc.(Engg.) in CSE
Course Code: PHY 103, Course Title: Electromagnetism and Optics

Marks: 30 Time: 1 hour 30 minutes

Answer any six from the following questions

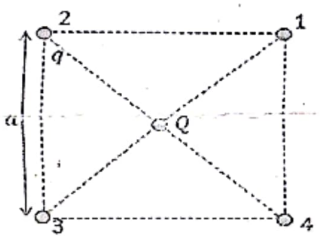
1. Write a short note on different electrical units. 5

2. State and explain Coulomb's law. 5

3. Two charges feel a repulsive force of 96 (*N*). What is the force if the separation, *r*, is doubled? 5

4. There are three charges, $q_1 = +4\times10^{-6}$ C, $q_2 = -5\times10^{-6}$ C and $q_3 = 6\times10^{-6}$ C situated on a line. The distance between q_1 and q_2 is 2m and the distance between q_2 and q_3 is 3 m find the force on the center charge q_2. 5

5. 5



Four equal charges $q = 6\times10^{-6}$ C are situated at the corners of a square as shown in the above diagram. What is the net force on the test charge $Q = 6\times10^{-6}$ C at the center? (Given a = 1 cm).

6. What is electric potential? Give a mathematical expression for it. 5

7. Expiain Electric flux with necessary mathematics. 5

8. State and Explain Gauss's law. 5

9. Using Gauss's law find the electric field for a long charged wire. 5