

GIFT UNIVERSITY GUJRANWALA

Semester-I, January 2021

Course Title: Applied Physics

Course Code: PHY-106 Marks: 20

STUDENT NAME: _____ ROLL No: _____ Time: 1 hr and 20 minutes Quiz

Note: You have 1 hr to attempt this Quiz. When you attempt this Quiz then capture the pics of the pages and convert it into pdf form by using software in mobile known as cam scanner or in Laptop or PC you can convert these images online into pdf (For this you have 20 extra minutes). No excuse will be accepted. Keep in mind pages or questions are in sequence otherwise I will not mark that paper. After 1 Feb when you will come for taking the physical class on campus brings these pages on which you will attempt this quiz with you. If someone excuses then I will reduce 5 marks of that student. No light issue, charging issue or any other issue will be accepted.

Attempt the following short questions.

Q#1 Why is charge usually transferred by electrons rather than by protons? 02

Q#2 Prove that Gauss's and Coulomb's law are equivalent. 02

Q#3 Electrostatic force experienced by $-3\mu\text{C}$ charged placed at a point P due to a point charge system S as shown in figure is $\vec{F} = 13\hat{i} + 9\hat{j}$ N. Find the electric field intensity at a point P due to S.

02



Q#4 A system has two charges $q_A = 2.5 \times 10^{-7} \text{ C}$ and $q_B = -2.5 \times 10^{-7} \text{ C}$ located at points A; $(0, 0 - 0.15) \text{ m}$ and B; $(0, 0, +0.15) \text{ m}$ are respectively. What is the net charge and electric dipole moment of the system?

03

Q#5 A gravitational field vector points toward the earth, an electric field vector points toward an electron. Why does electric field vectors points away from protons?

02

Q#6 What is the voltage at the location of a 0.0001 C charge that has an electric potential energy $0.3125 \times 10^{19} \text{ eV}$? (Assume the energy in joule).

02

Q#7 Why are the lightning rods normally taller than the buildings they protect. 01

Attempt the following long question

Q#7 Explain what is symmetry and what do you mean by spherical, cylindrical, and planar symmetry. Apply Gauss's law to determine the electric field of a system with planar symmetry on which a positive charge is uniformly distributed. 02+04