United International **University**

School of Science and Engineering

Class Test III; Year 2020; Semester: Fall
Course: PHY 2105; Title: Physics
Marks: 10; Section: B; Time: 30 minutes

1. Two charges $Q_1 = 2 \times 10^{-8}$C and $Q_2 = 4 \times 10^{-8}$C are separated by a distance 10cm. Find out electric field and it's direction at a point 10cm away on the perpendicular bisector of charges Q_1 and Q_2. [3]

2. An electric dipole of charges 2×10^{-10}C and -2×10^{-10}C separated by a distance 5 mm, is placed at an angle of 60^o to a uniform field of 10N/C. Find the (i) magnitude and direction of the force acting on each charge. (ii) Torque exerted by the field, [4]

3. charge of -1.0 μC is located on the y-axis 1.0 m from the origin at the coordinates (0,1) while a second charge of +1.0 μC is located on the x-axis 1.0 m from the origin at the coordinates (1,0). Draw the charge arrangement and determine the value of the following quantities at the origin: (i) the magnitude of the electric field E, (ii) the direction of the electric field, [3]