Physics 102 (S15)   **Q1C**

Name: ——————————— **Section:** ————— **Score:** —————**/20**

1. Very small identical metal spheres A and B are on glass stands placed 0.3 m apart as in Fig. 1.
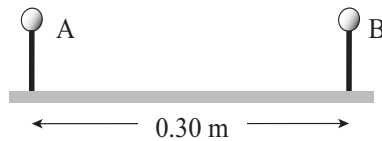

Figure 1:

(a) Initially, A has -3 μC and B has -1 μC. What is the force acting on A due to B? Compute its magnitude and draw its direction in the figure with an arrow. [5]

(b) After A and B are connected with a conducting wire, they are again isolated as before without moving them. What is the force acting on B due to A? Compute its magnitude and draw its direction in the figure with an arrow. [5]

2. On a line are two points A and B as shown in Fig. 2. At A is charge $-3 \ \mu$C, and at Q and B are unknown charges.

A   Q   B
⊸—————————⊸———————————————⊸—
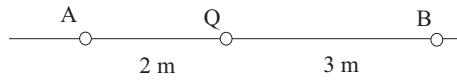   2 m   3 m

Figure 2:

(a) The force on the charge at A due to that at Q is 25 N to the left. Compute the charge at Q. [5]

(b) There is no net force on the charge at Q. What is the charge at B? [5]