15-Phys-202

S 2002

Prof. F. Mansouri
Quiz 5 Name _____

1. In the Figure the battery has the potential difference of 8.0 V. The capacitance of each of the capacitors is 2.0 μF,

$$C_1 = C_2 = C_3 = C_4 = C_5 = 2.0\ \mu\text{F}$$

Find

(a) The equivalent capacitance of all the capacitors;

(b) The charge stored on that equivalent capacitance;

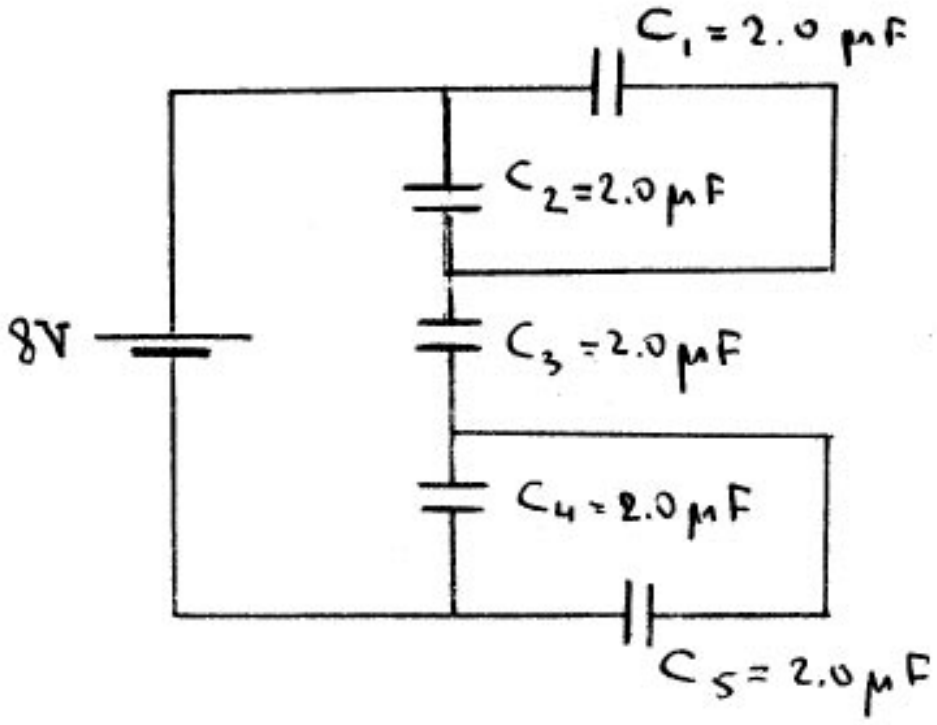
(c) Find the charge and potential on each of the capacitors.

Solution

(a) $C_{eq} = 1.0\ \mu$F;

(b) $q = 8.0$ C;

(c) $V_1 = V_2 = V_4 = V_5 = 2.0$ V, $V_3 = 4.0$ V;
$q_1 = q_2 = q_4 = q_5 = 4.0$ C, $q_3 = 8$ C;


$C_1 = 2.0\ \mu F$
$C_2 = 2.0\ \mu F$
8V
$C_3 = 2.0\ \mu F$
$C_4 = 2.0\ \mu F$
$C_5 = 2.0\ \mu F$