QUIZEN – Capacitor CCWS12P2

Learning Level 1	*Learning Level 2*	*Learning Level 3*
Q - Remembering (knowledge-based questions) U - Understanding (comprehension-based questions)	I - Applying (application-based questions) Z - Analyzing (analysis-based questions)	*E - Evaluating (evaluation-based questions)* *N - Creating (creation-based questions)*

Learning Level 1

1. Define capacitance.
2. What is the unit of capacitance?
3. What is the capacitance of a parallel plate capacitor if the distance between the plates is 5 mm and the area of each plate is 10 cm^2?
4. What is the capacitance of a spherical conductor of radius r?

Learning Level 2

1. A parallel plate capacitor has a capacitance of 2 µF. If the separation between the plates is doubled, what will be the new capacitance?
2. A capacitor is made up of two parallel plates separated by a distance d. A dielectric material is introduced between the plates. What will happen to the capacitance of the capacitor?
3. Two capacitors, one of capacitance C1 and the other of capacitance C2, are connected in series. What is the equivalent capacitance of the combination?
4. Two capacitors, one of capacitance C1 and the other of capacitance C2, are connected in parallel. What is the equivalent capacitance of the combination?

Learning Level 3

1. A parallel plate capacitor has a capacitance of 10 µF. What is the charge stored in the capacitor if a potential difference of 100 V is applied across the plates?
2. A capacitor is charged to a potential difference of 100 V and then disconnected from the charging source. If the plates are now moved closer together, what will happen to the potential difference between the plates?
3. A capacitor of capacitance C is connected to a battery of emf E. What is the energy stored in the capacitor?
4. A capacitor of capacitance C is charged to a potential difference V. What is the energy stored in the capacitor?

Formula's

Capacitance of a parallel plate capacitor:

$$C = \frac{\epsilon_0 A}{d}$$

Capacitance of a spherical conductor:

$$C = \frac{4\pi\epsilon_0 r}{1}$$

Capacitance of a capacitor with a dielectric material:

$$C = \frac{\epsilon_r \epsilon_0 A}{d}$$

Equivalent capacitance of capacitors in series:

$$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2} + \ldots + \frac{1}{C_n}$$

Equivalent capacitance of capacitors in parallel:

$$C_{eq} = C_1 + C_2 + \ldots + C_n$$

Charge stored in a capacitor:

$$Q = CV$$

Energy stored in a capacitor:

$$U = \frac{1}{2}CV^2$$