

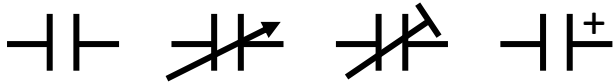


Lesson 6 – ANSWERS

Q1. What is a capacitor?

Capacitor is an electronic component that stores electric charge.

Q2. Name the capacitor symbols.



Fixed cap Variable cap Trimmer cap Polarised cap

Q3. What are the variables in designing a capacitor?

- **Area of the plates**
- **Distance between the plates.**
- **Dielectric**

Q4. What is the total capacitance of these capacitors in series?

C1	C2	C3	C Total
3 mF	10 mF	2 mF	1.07 mF
6 pF	3 pF	1 pF	1.5 pF
6 nF	12 nF	1 nF	0.8 nF

Q 5. What is the total capacitance of these capacitors in parallel?

C1	C2	C3	C Total
3 mF	10 mF	2 mF	15 mF
6 pF	3 pF	1 pF	10 pF
6 nF	12 nF	1 nF	19 nF

Q6 Complete the charge table for the following.

$$Q = CE$$

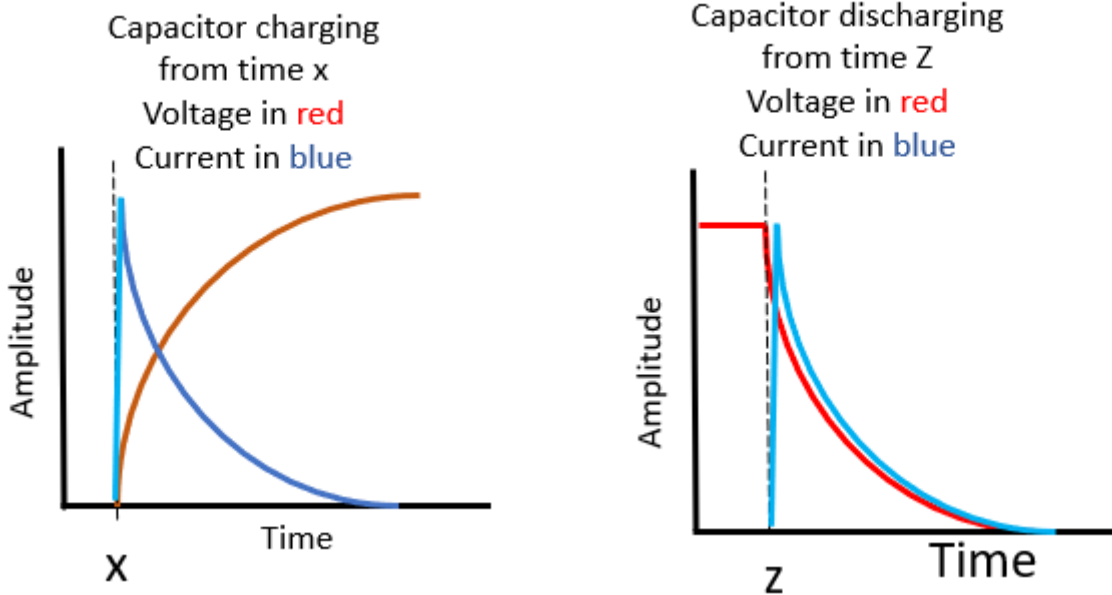
Q	C	E
6 Q	0.5 F	12 V
15 nQ	3 nF	5 V
2 Q	12 mF	166 V

Q7 Complete the energy table for the following.

$$W = \frac{E^2 \times C}{2}$$

W	C	E
2 J	0.11 F	6 V
37.5 J	3 F	5 V
5 J	11 F	0.95 V

Q8 Explain in your own words and diagrams, the charging and discharging of a capacitor focusing on the voltage and current.



Q9 What is an inductor?

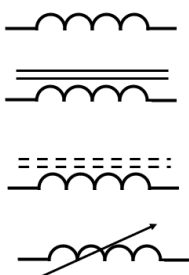
An inductor, also called a coil, choke, or reactor, is a device that stores energy in a magnetic field.

Q 10 Complete the energy table for the following.

$$W = \frac{I^2 \times L}{2}$$

W	L	I
2 J	1 H	2 A
37.5 J	3 mH	5 mA
5 J	11 H	0.95 A

Q11 Identify the following symbols.



- Air core inductor**
- Ferrous core inductor**
- Ferrite core inductor**
- Variable inductor**

Q12 What is the total inductance of these inductors in parallel?

L1	L2	L3	L Total
16 mH	15 mH	21 mH	5.6 mH
16 pH	30 pH	0.1 pH	0.099 pH
60 nH	12 nH	100 nH	9.09 nH

Q13 What is the total inductance of these inductors in series?

L1	L2	L3	L Total
16 mH	15 mH	21 mH	52 mH
16 pH	30 pH	0.1 pH	46.1 pH
60 nH	12 nH	100 nH	172 nH

Q14 Explain in your own words and diagrams, the charging and discharging of an inductor focusing on the voltage and current.

