Exercise (QCM) – Energy harvesting and storage: let consider a variety of energy harvesting solutions aiming at being implemented and used in Internet-of-Things nodes with sizes less of cm^3 for autonomous system operation. Chose the correct statements among the following ones:

1. One of the most power hungry components of an autonomous IoT nodes is today formed by the sensors and their readout interfaces.
2. The combination of an energy harvesters and of a rechargeable battery is motivated by the need to sustained peaks of power consumption much larger than the average power consumption of the sensory system during the activation of the data communication thorough wireless interfaces.
3. Among the state of the art energy harvesting solutions, the highest amounts of energy can be harvested from the surrounding RF electromagnetic waves.
4. With a solar cell having an area of 10x10cm^2 one can collect about 1mW of power indoor under a 1000Lux intensity.
5. Energy harvesting from vibration needs matching between the frequencies of vibrations and the mechanical resonance frequencies of the masses used to scavenge the mechanical energy.
6. Energy harvesting from applied external forces with piezoelectric materials needs AC/DC and DC/DC converters. The efficiency of such converters is key for the efficiency of the resulting harvester.
7. The package characteristics have no influence on the energy conversion efficiency of a termoelectrical generator (TEG).
8. An complete scheme of energy harvesting used in an IoT node needs each of the following components: (i) the energy harvesting device, (ii) an energy storage device, (iii) a power management electronic circuit.
9. A supercapacitor is a structure that exploits Li-ion battery technology.
10. A supercapacitor has the key advantage of much fast power charging and discharging than a battery for much more operating cycles.