

Sample „Batteries” exam questions

In all answers please **do not write more than seven sentences** (if not indicated otherwise):

1. Explain briefly, what can be changed in composition/construction/components of lead-acid battery in order to make it safer in automotive/traction applications. (6 p.)
2. Explain briefly (provide examples of parameters/properties), why in modern electric cars there are lithium-ion cells used instead of nickel-hydride ones? (8 p.)
3. Propose such composition (components/materials) of a lithium-ion cell, so the final product would be as cheap as possible (optimization for lowest manufacturing cost). (12 p.)
4. Explain, what effect has full (deep) discharge on lithium-ion cell containing carbon-based electrodes. (6 p.)
5. Explain, why in the instruction manuals for the majority of modern electric cars with lithium-ion cells manufacturers recommend to store car connected to a charger all the time when not in use. (8 p.)

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