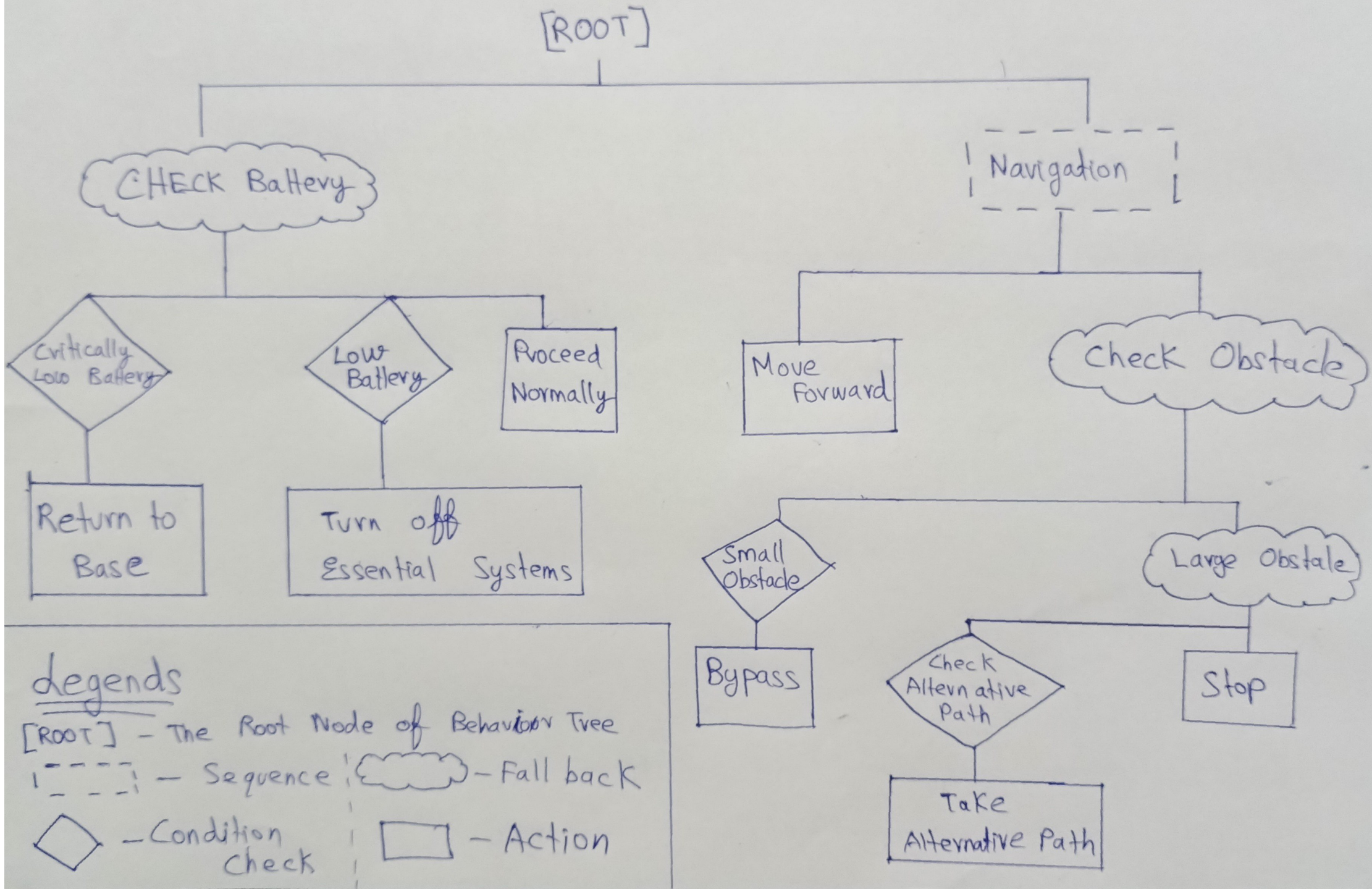
BEHAVIOR TREE (MaRS Rover)



Questions :-

a) Fall back Node - Better Decision Making

→ It acts like a priority based decision node

→ It tests conditions in order from top to bottom

Example in Battery Check :-

1. First we check the critical battery condition → → Immediate return if false
2. If not, we check the low battery condition → power saving code.
3. If all fails, it defaults to normal condition.

b) Why it is better than using long if-else conditions?

→ The nodes can be reused in Behaviour-Trees while it is hard to reuse in If-else chains.

→ It is easy to add or remove nodes while it requires re-writing in If-else chain.

→ Failure handling is explicit while error handling is mixed with logic in If-else chains.

c) What happens if the battery is low but not critically?

→ Fails "critically low?" check

→ Turns off non-essential systems (like cameras) to save power

→ Never reaches "Normal condition"

→ Rover continues mission with reduced functionality