For each of the following questions, outline how you could use an A/B test to find an answer. Be sure to identify all five key components of an A/B test we outlined above.

* Does a new supplement help people sleep better?
* Will new uniforms help a gym's business?
* Will a new homepage improve my online exotic pet rental business?
* If I put 'please read' in the email subject will more people read my emails?

1. Does New Supplement help people sleep better?

1. two versions: A = old supplement or placebo (depending on pre-existence of product) B = new supplement

2. samples: individuals with reported sleep challenges controlled for particular type of challenge. I.e. the myriad issues should be equally dispersed between the two groups. A quick online search provides several such instances: sleep apnea, delayed sleep phase disorder, jet lag, advanced sleep phase disorder, narcolepsy, non-24-hour sleep-wake syndrome, restless leg syndrome, and sleepwalking. This list is not exhaustive and there could be reasons for not sleeping that are as yet unaccounted for. The Sample group needs to be divided in such a way that all disorders are as balanced and fairly represented as possible between the two groups.

3. hypothesis: group B will report improved sleep patterns over group A.

4. outcomes: factors of sleep: quick and dirty measurements using self-reported survey

* speed of falling asleep – scale of 1 (fell asleep quickly) to 5 (didn’t fall asleep at all)
* length of sleeping bout – scale of 1 (very short) to 5 (slept all night)
* depth of sleep – scale of 1 (every little noise caused arousal) to 5 (dead to the world)
* ease of waking – 1 (jumped out of bed like a bunny in mating season) or 5 (kill me now so I can sleep some more)

5. secondary variables:

* improved mood
* improved energy
* ability to focus
* loss of lethargy

2. Will new uniforms help a gym's business?

1. two versions:   
 A = old uniforms   
 B = new uniforms

2. samples: If there is more than one location for the gym then group A would be half the locations and group B the other half; balanced for location/clientele type if possible. One group would wear the old uniform and the other groups would wear the new.

If split by location is not possible, or if only one location exists, then group A and group B will be split by time; if the gym has been open long enough then group A will be historical data corresponding to the test data (e.g. every March and April for the past 5 years …avoiding typically busy times when people might be motivated to go to the gym for other reasons such as Summer months/bikini season, or January when everyone makes NewYears’ Resolutions) and group B will be a preselected period of time sufficient to gain enough measurements to make a judgment – perhaps one or two months in order to measure new clients and retention.

3. hypothesis: New uniforms will freshen up the ‘face’ of the environment and make customers feel they are in a professional well-organized facility. This should a – bring in new customers and b – retain more customers

4. outcomes:

* Increase in new customers
* Improved retention rate/less dropped clients

5. secondary variables:

* Increase customer use/frequency
* Increase in sales of other items e.g. boutique items, supplements, water, towels, mats, etc.

3. Will a new homepage improve my online exotic pet rental business?

1. two versions:   
 A = old homepage  
 B = new homepage

2. samples: a length of time enough to measure change (if typical activity is one rental per week then maybe two months would provide enough data).

3. hypothesis: changes made will increase customer base.

4. outcomes:

* increase in rentals

5. secondary variables:

* more page views
* more time spent
* more clicks on page

4. If I put 'please read' in the email subject will more people read my emails?

1. two versions:   
 A = version of email with ‘please read’  
 B = version of email without ‘please read’

2. samples: half the sample will get one version and the other half will get the other version. Groups should be balanced across measurable attributes e.g. age, gender, marital status, children, etc.

3. hypothesis: group with ‘please read’ will have higher rate of email opening than group without.

4. outcomes:

* number of emails opened
* length of time email remained open.
* number of responses

5. secondary variables:

* number of forwards and shares.