FORENSICS B FINAL EXAM Hmmmmm

CHAPTER 1

Identify and describe the job of all forensic specialists
Know the units and what happens in each
Place specialists in the correct units
List 3-4 things the first officer on the crime scene must do
Know what 2 methods are used to record a crime scene
List several examples of physical evidence that should be collected from the victim or crime scene
Define forensics
List several things a finished sketch should have
List and/or recognize the four search methods used
Give several examples of how to stop contamination of a crime scene from the beginning and throughout the investigation
Explain what is meant by a "Chain of custody"
Explain what a "control" is and why it would be gathered
Give several reasons why allowances would be made regarding search without a warrant
Why do I say "Expert Witness" in quotes?

BLOOD

Blood – what is it? What is in it?
Blood types – AB, A, B, O
What genes can you have for each blood type?
What antigens are on the red blood cells for each blood type?
What antibodies are circulating through the bloodstream?
How can agglutination tell you the blood type of a person?
What type of blood can each individual receive?
What type of blood can be given to anyone (universal donor)?
Who can take almost any kind of blood (universal acceptor)?
What does the + and – for blood type refer to?
Can you determine parental relationships given blood types?

Blood spatter
Vocab = target surface, arterial spurts, satellites, spines, origin etc
List the variables that affect blood spatter - what have we demonstrated in class?
Differentiate between blood dropped at different heights, angles and at different velocities
Can you use the drop pattern, direction of spines and satellites etc to determine the direction of the blood?
How does increased volume of blood affect the drop pattern?
What is the difference between wipes and swipes?
How does the impact angle of less than 90 degrees affect the drop pattern?
What about changes in target surface?

Blood detection
Hydrogen peroxide, precipitin, luminol, and phenolphthalein – what's up with these?

DNA

What is the basic structure of DNA?
What makes up the sides of the ladder? Rungs? Which bases go together?
What is the role of DNA in a cell?
How can you store DNA in the lab?

Techniques:
DNA extraction – What is the purpose?

How do you get the DNA out of the cell etc?
What is used to lyse the cells?
What is the centrifuge for?
What does the DNA look like when it's done?
PCR – What is the purpose?
You Need nuclease free water, polymerase and dATP, dTTP, dCTP and dGTP to do this but what are these and what do they do?
What are the main steps of PCR? Denaturation ----------refrigeration
What happens in each of these steps?
What is a thermocycler?
Why is the machine set for 25-30 cycles?
DNA fingerprinting and gel electrophoresis – What is the purpose?
What is the gel made with?
What are the wells for?
What does RFLP mean?
When you are done, why does all the DNA look different?
Do you know how to tell if there is a match?
Do you know where a restriction enzyme might cut the DNA?
DNA sequencing – What is up with this?

ANTHROPOLOGY

Be able to label all the bones of the skeleton using scientific names
Label the 5 parts of the vertebral column
Label the 5 parts of the pelvic girdle
What do forensic anthropologists do?
List several things they can determine by identifying bones
Know differences in the bones and skeleton based on the aging process
Know some tests to determine gender, race and age
List tools they use to solve cases
Why is metric data better than non-metric data?
Basic vocab – bone names, orbitals, nasal spine, pubic arch, jaw angle, MLF
What are the best parts of the skeleton to determine Race? Gender? Age? Height?
Anything else?

ENTOMOLOGY

Which species are most often used by forensic entomologists and why?
Know the life cycle of flies and how to determine PMI
Be able to identify the stages: egg, 1st, 2nd, 3rd instar, pupa, adult fly etc
How can weather affect decomposition? What types of weather conditions would a forensic entomologist pay attention to?
What other jobs do entomologists do?
How can clothing, placement of the body, coverings, burial, time of death etc affect decomposition?
Be able to explain the steps an entomologist would use to assess a crime scene – what do they collect? How much? What is collected first? What do they do with the samples? Etc…
What equipment would be used by a forensic entomologist?
What parts of a body would be inhabited first and why? How can a pathologist determine wound areas on a corpse?
How can drugs affect bugs?
Why do female flies lay eggs on bodies in the first place? What is the point?
Why would an entomologist kill some insects from the crime scene but keep others alive?
What are algo mortis, Rigor mortis and livor mortis?
What are the times for these processes?
Be able to use these processes and fly life cycle stages to determine PMI