

Name _____
APES Topic 9 – Toxicology

Date _____
Mr. Romano

Toxicology and Human Health Review Guide

This is a good guide of the concepts you MUST know. I made this for you because of the extenuating circumstances related to extensive mid-quarter testing, the weather, field trips, the play, SATs, etc... Please prepare well using this so that the time I spent making this wasn't a waste.

Part 1 (pages 136-158) - 40 Multiple Choice Questions

1. Know the distinct difference between bioaccumulation and biomagnification and examples of the terms in context.
2. Be able to perform basic calculations (with or without using dimensional analysis) like the ones performed on pages 148-150 (look back at the ibuprofen, and acetaminophen examples).
3. Know the major case studies (Lake Apopka and the Great Lakes), the chemicals involved, the animals affected, and how they were affected.
4. Know your laws/initiatives (TSCA, GLWQA, and CERCLA/Superfund) and their main objectives.
5. Know the two dose-response models: threshold and non-threshold and be able to determine NOEL (NOAEL), TLV, potency, and LD₅₀ using such graphs.
6. Know the problems with aquaculture (we watched videos on this when we were reviewing bioaccumulation).
7. Know the chemical classifications (flammables, asphyxiants, irritants/allergens) and examples of each.
8. Minamata disease – know the basic background story
9. Know the methods that scientists use to determine toxicity: doctors' medical reports, controlled lab experiments (be ready to apply your knowledge of valid experimental design – radish lab, page 148), epidemiology (Contagion) ,
10. Know the exact definition of LD₅₀
11. Mutagens and carcinogens – know how they are alike and what makes them different.
12. Teratogens and endocrine disruptors - know how they are alike and what makes them different and chemicals responsible for each.
13. Know how neurotoxins affect an organism
14. Know the difference between acute exposure/response and chronic exposure/response.
15. Chemical interactions: additive, synergistic, antagonistic
16. Why is Rachel Carson significant in the realm of environmental studies?

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Part 2 (pages 159-164) - 40 Multiple Choice Questions

1. Know the objectives of the First and Second Green Revolutions
2. Know the laws/initiatives (1 question for each): FD &C, FIFRA, FQPA, Stockholm Convention
3. Botany of Desire Video Study Guide Questions (apples, potatoes, tulips) – all are game
4. Know the definition of GMO and examples
5. Know the specific definitions of the “wealth diseases” as well as the ones associated with undernutrition
6. monoculture v. polyculture – what makes them different?
7. What are the main problems that arise from practicing monoculture?
8. Know the practices of traditional subsistence agriculture (polyculture, intercropping, agroforestry)
9. What is irradiation? Why is it used?
10. Know the steps toward genetic resistance in pests as a result of the “pesticide treadmill”
11. Know ways to reduce the use of pesticides – examples of biological control and natural chemical control.
12. Even though banned in the U.S., why is DDT (and other synthetic chemicals) still such a problem to the environment?
13. What agricultural practices can help reduce the need for pesticides?
14. What do the letters POP stand for?
15. What metal is useful as a fungicide? As a wood preservative?
16. Which metals have been phased out as pesticides? Which one is being phased out?
What inorganic substances are replacing these metals as insecticides?
17. Why are pyrethrum and nicotine safer alternatives to pest control?
18. Know how systemic pesticides function to kills pests.