Final Exam
Continuing Education Course #529
PFAS in Biosolids

1. Which does PFAS stand for?
- a. Post fluorinated substances
- b. Per- and poly-fluoroalkyl substances
- c. Persistent forever ashes
- d. Pen-fluoroalkyl substances

2. What does AFFF stand for?
- a. Ash Fluorinated Forming Foam
- b. Aqueous Fluorinated Fast Foam
- c. Aqueous Film Forming Foam

3. In which organs does PFAS tend to accumulate?
- a. Lungs and Skin
- b. Liver and Kidney
- c. Bones and Teeth

4. Where does PFAS originate?
- a. Chemical manufacturing facility
- b. Landfill
- c. Natural environment

5. Which is NOT a way PFAS can enter residential homes?
- a. Drinking water
- b. Consumer products
- c. Food
- d. Runoff

6. What makes PFAS last so long?
- a. Fluoride-carbon bonds
- b. End ion
- c. Carbon backbone

7. Which describes PFOA, which has a backbone of 8 carbon atoms?
- a. Short-chain
- b. Long-chain
- c. Polymer

8. Which describes PFOA, which has a backbone of 8 carbon atoms?
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- b. Long-chain

○ c. Polymer

9. Which describes PFBS, which has a backbone of 4 carbon atoms?
○ a. Short-chain
○ b. Long-chain
○ c. Polymer

10. Which is NOT another word for biosolids?
○ a. Residuals
○ b. Filtrate
○ c. Biosludge
○ d. Dried sludge

11. Which type of sludge has the greatest percent solids?
○ a. Dewatered
○ b. Raw
○ c. Primary
○ d. Secondary

12. Which is NOT a benefit to digesting sludge?
○ a. Stabilizes
○ b. Easier to dewater
○ c. Reduces odor
○ d. Fast process

13. Which is the most common disposal method for municipal biosolids?
○ a. Land Application
○ b. Incineration
○ c. Landfilling
○ d. Other

14. Which is NOT a benefit to land application for biosolids?
○ a. Nutrient addition
○ b. Seasonal use
○ c. Improved soil structure
○ d. Reduced irrigation requirements

15. What is the "agronomic rate" for applying biosolids?
○ a. Slightly less nutrients than crops need
○ b. Just enough nutrients for crop needs
○ c. Slightly more nutrients than crops need

16. What the three classes of biosolids?
○ a. A-EQ, A, B
○ b. A, B, C
○ c. B, C, E,

17. Which unit of measure is conventional for biosolids?
○ a. Wet volume
○ b. Wet weight
○ c. Dry weight

18. What is the main federal regulation for biosolids?
- a. 40 CFR 503
- b. EPA 1533
- c. 40 NPDES

19. Is there a federal limit on PFAS in biosolids?
- a. Yes
- b. No

20. Which state has a total ban on land applying biosolids?
- a. Alaska
- b. Maine
- c. Vermont

21. Which state has a ban on land applying biosolids if PFOS is over 125 ppb?
- a. California
- b. Massachusetts
- c. Michigan

22. What is the EPA recommended test method for PFAS in biosolids?
- a. CFR 503
- b. Method 1633
- c. Method 160.2

23. Which is NOT a technique for removing PFAS from wastewater?
- a. Sedimentation
- b. GAC
- c. IX
- d. NF

24. What is another term for complete destruction of PFAS?
- a. Conflagration
- b. Mineralization
- c. Fragmentation

25. Which is NOT a sorbent for PFAS stabilization?
- a. Biochar
- b. RemBind
- c. Hypochlorite
- d. Activated carbon