

**GEOGRAPHIC INFORMATION SYSTEMS
GEOGRAPHIC INFORMATION CENTER
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***** EXAMINATION *****

**OXIDATION - REDUCTION POTENTIAL FOR WATER DISINFECTION,
MONITORING, CONTROL, AND DOCUMENTATION**

1. **Large volumes of water are used during**
 - a) postharvest handling
 - b) processing of minimally processed fruits
 - c) both a and b
 - d) None of the above
2. **Water recirculations are common because**
 - a) of economic considerations
 - b) of wastewater discharge regulations
 - c) both a and b
 - d) None of the above
3. **Disinfection of water is a critical step in**
 - a) minimizing the potential transmission of pathogens
 - b) maximizing the potential transmission of pathogens
 - c) evaluating water quality
 - d) None of the above
4. **Points of entry for microbes include**
 - a) natural plant surface contours
 - b) harvest and trimming wounds
 - c) handling injuries
 - d) All of the above
5. **Oxidation-reduction potential status of water systems**
 - a) are being monitored by sensors
 - b) are being monitored by pH meters
 - c) are being monitored by turbidity monitors
 - d) All of the above
6. **Oxidation-reduction potential is measured in**
 - a) milliamps
 - b) millivolts
 - c) millimeters
 - d) millijoules

7. **In the oxidation-reduction potential process**
 - a) oxidation occurs at the cathode
 - b) oxidation occurs at the anode
 - c) reduction occurs at the anode
 - d) Either a or b

8. **Some oxidation-reduction potential sensor**
 - a) provide automatic injection of hypochlorite
 - b) provide automatic injection of muriatic acid
 - c) provide automatic injection of phosphoric acid
 - d) Any of the above

9. **Oxidation-reduction potential probes**
 - a) use audible alarms
 - b) use visual alarms
 - c) use remote alarms
 - d) Any of the above

10. **Oxidation-reduction potential values of 650 to 700 mV**
 - a) will kill bacteria within 10 seconds
 - b) will kill bacteria within 20 seconds
 - c) will kill bacteria within 30 seconds
 - d) will kill bacteria within 40 seconds

11. **Oxidation-reduction potential values of 650 to 700 mV**
 - a) will kill spoilable yeast within a few seconds
 - b) will kill spoilable yeast within a few minutes
 - c) will kill spoilable yeast within a few hours
 - d) will kill spoilable yeast within a few days

12. **Cryptosporidium species are highly tolerant of**
 - a) chlorine oxidizers
 - b) bromine oxidizers
 - c) iodine oxidizers
 - d) Any of the above

13. **Cryptosporidium species can be controlled by**
 - a) peroxyacetic acid
 - b) ozonation
 - c) high-intensity UV light
 - d) Any of the above

14. **Monitoring the buildup of inorganic and organic solutes**
 - a) and particles would include turbidity tests
 - b) and particles would include total suspended solids tests
 - c) and particles would include conductivity tests
 - d) All of the above

15. **The disadvantages of oxidation-reduction potential systems**
- a) include maintenance
 - b) include calibration
 - c) include cross-checking of fixed-position sensors
 - d) All of the above
16. **Ozone detection kits work well**
- a) for small concentrations
 - b) for large concentrations
 - c) at the limit of approved concentrations
 - d) None of the above
17. **Doubling the free chlorine in an oxidation-reduction**
- a) potential system doubles the potential
 - b) potential system halves the potential
 - c) potential system does not result in a sizeable gain
 - d) Any of the above may occur
18. **Bounce in sensor readout in an oxidation-reduction**
- a) potential system may be as much as 10 mV
 - b) potential system may be as much as 25 mV
 - c) potential system may be as much as 40 mV
 - d) potential system may be as much as 55 mV
19. **For hand-held sensor units, immersion time**
- a) in a flowing water source should be 30 seconds
 - b) in a flowing water source should be 45 seconds
 - c) in a flowing water source should be 60 seconds
 - d) in a flowing water source should be 75 seconds
20. **Excessive chlorination in an oxidation-reduction system**
- a) may result in accumulation of phosphates
 - b) may result in accumulation of trhalomethanes
 - c) may result in accumulation of nitrates
 - d) Any of the above

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