9. Besides filter leak testing semiannually, what must be done more periodically to monitor performance of HEPA filters (FDA)?
10. What basic sciences should personnel involved in aseptic processing be trained on (EU and FDA)?
11. What are the two main requirements for clean room construction of floors, walls, and ceilings (FDA and EU)?
12. What should be fitted between a drain and the machine or sinks it serves (EU)? Are drains permitted in Grade A environments? Or Grade B environments?
13. What is the pressure differential guidance (both in U.S. units and European units) between adjacent rooms of different grades?
14. What should happen after equipment maintenance has occurred within a clean room (EU)?
15. What does FDA state is improper to do prior to environmental sampling of gloves on operators?
16. What is a unique requirement for disinfectants and detergents used in Grades A and B areas (EU)?
17. What is the requirement for validation of glass container depyrogenation (FDA)?
18. Why is there a time limitation between washing and sterilization of components and equipment (two answers) (FDA and EU)?
19. What is the minimum requirement for (a) the number of separate media fills required initially to qualify a new filling line or process; (b) the number of revalidation runs per shift and processing line; and (c) the number of media fills that each person involved in aseptic processing should be part of (FDA)?
20. What is the minimum number of container units to be filled during a media fill (FDA)?
21. What is to be done with a media-filled container if it is found to be defective (a) prior to incubation; (b) during or after incubation (FDA)?
22. What is the minimum acceptable contamination rate for a media fill (FDA and EU)?
23. What tests should be conducted prior to filtration sterilization (EU)?
24. What is the challenge a filter must pass in order to be a validated filter system for a given product? Can you name the three expectations FDA and other regulatory authorities now expect to review when reviewing filter system validation?
25. True or False. FDA will not allow filter validation to be done without filtering the actual product and actual process conditions?
26. What is the minimum sterility assurance level required by FDA for sterilization of a "load"?
27. What items does FDA indicate are most difficult to sterilize?
28. What two physical parameters must be monitored during moist heat sterilization (EU)?
29. When should critical surface sampling be performed and where should samples be taken during production activities (FDA)?
30. True or False. The filtration process should be complemented by some degree of heat treatment (EU)?
31. True or False. Double filtration is "advisable" (EU)?
32. True or False. Parametric release is recognized in the United States, but not in Europe?
33. For sampling of aseptically filled products for sterility testing, when during the process should samples be taken (FDA and EU)?

ANSWERS TO QUESTIONS ON ASEPTIC PROCESSING AND ASEPTIC PROCESS VALIDATION (From Refs. 2 and 3)

1. What are the two general categories of manufacturing operations for sterile products? (FDA)

   Terminal sterilization and aseptic processing

2. With respect to airborne particulate classifications, what are the differences between the FDA guidelines and the EU guidelines?

   FDA units in cubic feet while EU units in cubic meters
   EU requires limits for particles ≥5 microns while FDA does not
   EU differentiates rooms "at rest" and "in operation"