PRACTICE EXAM 21: PUBLIC HEALTH SANITARIAN TRAINEE SIMULATION (100 QUESTIONS)

This practice exam contains 100 multiple-choice questions with one best answer for each question. For a realistic session, allow three hours. The New York State study guide identifies Arithmetic Reasoning; Understanding and Interpreting Written Material; and Principles of Biology, Chemistry, and General Science as the tested subject areas. Local examination announcements control administration, scoring, and eligibility details.

1. A sanitarian reviews 870 inspection records over 6 equal workdays. What is the average number of records reviewed per day?

A. 108.75 records
B. 145 records
C. 174 records
D. 5,220 records

2. A water sample batch contains 1300 samples. If 18% require a second review, how many samples require that review?

A. 130 samples
B. 156 samples
C. 1,066 samples
D. 234 samples

3. A trainee examines three-fifths of a set of 1050 permit files. How many files does the trainee examine?

A. 630 files
B. 210 files

C. 525 files
D. 1,470 files

4. What is 15.25 liters plus 7.85 liters?

A. 21.9 liters
B. 23 liters
C. 23.1 liters
D. 23.6 liters

5. A field team collects 75 samples during 3 hours at a steady rate. What is the collection rate per hour?

A. 18.75 samples per hour
B. 72 samples per hour
C. 25 samples per hour
D. 225 samples per hour

6. A container holds 520 gallons of water. A process removes 15% of the water. How many gallons remain?

A. 78 gallons
B. 505 gallons
C. 598 gallons
D. 442 gallons

7. A rectangular treatment area is 29 feet long, 5 feet wide, and 4 feet deep. What is its volume?

A. 580 cubic feet
B. 38 cubic feet
C. 145 cubic feet
D. 1,160 cubic feet

8. A bottle contains 13 liters, and 1800 milliliters are added. What is the total volume in liters?

A. 13.18 liters
B. 14.8 liters
C. 12.5 liters
D. 23.4 liters

9. Of 132 samples, 99 meet the screening criterion. What percentage of the samples meet the criterion?

A. 25 %
B. 60 %
C. 75 %
D. 80 %

10. A vehicle travels 8.7 miles from the office to a site and returns. It makes that round trip 24 times. How many miles does it travel?

A. 417.6 miles
B. 208.8 miles
C. 17.4 miles
D. 626.4 miles

11. A trainee must review one-fourth of 1160 records today. How many records are in today's assignment?

A. 145 records
B. 290 records
C. 580 records
D. 870 records

12. Six staff members divide 168 site visits equally. How many site visits does each staff member receive?

A. 24 visits
B. 33.6 visits
C. 1,008 visits
D. 28 visits

13. A program recorded 3300 inspections last quarter. The next quarter's target is 12% higher. What is the new target?

A. 3,696 inspections
B. 3,312 inspections
C. 3,663 inspections
D. 3,960 inspections

14. What is 2.7 multiplied by 1.3?

A. 4
B. 3.51
C. 1.4
D. 5

15. A pump moves water at 57 gallons per minute for 29 minutes. How many gallons does it move?

A. 86 gallons
B. 1,596 gallons
C. 1,653 gallons
D. 1,710 gallons

16. A report has 2960 entries. If 5% are selected for audit, how many entries are selected?

A. 59.2 entries
B. 296 entries
C. 2,812 entries
D. 148 entries

17. Two sampling locations are assigned for every three locations in another district. If 260 locations are assigned in all, how many belong to the first group?

A. 104 locations
B. 52 locations
C. 130 locations
D. 156 locations

18. A trainee records 39, 43, 46, and 56 minutes for four tasks. What is the average task time?

A. 43 minutes
B. 45 minutes
C. 46 minutes
D. 54 minutes

19. A sample cooler weighs 28.2 kilograms when full and 3.95 kilograms when empty. What is the sample load's mass?

A. 26.7 kilograms
B. 32.15 kilograms
C. -24.25 kilograms
D. 24.25 kilograms

20. A 170-gallon tank is filled to 40% of capacity. How many gallons are in the tank?

A. 42.5 gallons
B. 68 gallons
C. 102 gallons
D. 45 gallons

21. A cleaning mixture contains 1 part concentrate and 4 parts water. If the final mixture is 155 liters, how many liters are concentrate?

A. 31 liters
B. 15.5 liters
C. 38.75 liters
D. 124 liters

22. A rectangular storage room is 33.5 feet long and 8 feet wide. What is its floor area?

A. 41.5 square feet
B. 260 square feet
C. 335 square feet
D. 268 square feet

23. A trainee must inspect two-thirds of 279 sites. How many sites must be inspected?

A. 93 sites
B. 186 sites
C. 139.5 sites
D. 209.25 sites

24. A comparison shows 12 positive findings for every 20 routine findings. What is the ratio in simplest form?

A. 1:2

B. 2:3
C. 3:5
D. 12:20

25. A vehicle covers 18.9 miles in 70 minutes. At the same rate, what is its speed in miles per hour?

A. 16.2 miles per hour
B. 0.27 miles per hour
C. 18.9 miles per hour
D. 23.62 miles per hour

26. A container receives 650 milliliters and then 3.5 liter. What is the total volume in liters?

A. 3.56 liters
B. 3.5 liters
C. 2.27 liters
D. 4.15 liters

27. A backlog of 570 files is reduced by 30%. How many files remain?

A. 171 files
B. 399 files
C. 540 files
D. 741 files

28. 28 boxes each contain 24 sterile sample bags. How many bags are available?

A. 672 bags
B. 52 bags
C. 648 bags
D. 840 bags

29. 25 staff members spend 3.5 hours each on a training exercise. What is the total staff time?

A. 28.5 staff-hours
B. 84 staff-hours
C. 87.5 staff-hours
D. 100 staff-hours

30. The number of complaints rises from 132 to 165. What is the percentage increase?

A. 12 %
B. 25 %
C. 20 %
D. 30 %

31. A technician has 15 liters of solution and uses 0.6 liter per test. How many complete tests can be run?

A. 14 tests
B. 10 tests
C. 9 tests
D. 25 tests

32. Of 810 submitted samples, one-third are from private wells. Ten percent of those well samples are invalid. How many well samples are valid?

A. 27 samples
B. 270 samples
C. 243 samples
D. 729 samples

33. A sample has 6 kilogram. What is that mass in grams?

A. 600 grams
B. 60 grams
C. 6,000 grams
D. 60,000 grams

34. Three inspection teams report 43, 60, and 78 completed visits. How many visits did they report altogether?

A. 181 visits
B. 103 visits
C. 123 visits
D. 191 visits

35. Read the note: "Last month, the inspector found a damaged screen door. During today's visit, the door is repaired, but a separate handwashing sink lacks soap." What is best supported?

A. The prior problem remains unchanged at today's inspection
B. No sanitation problems were found anywhere during this visit
C. The inspector should disregard the sink because the door is repaired
D. The current visit documents a different problem from the prior one

36. Read the instruction: "Label each sample with the site, collection date, collection time, and collector initials before shipping. The next batch is from Well 23." What should the trainee do first?

A. Ship the samples immediately without checking labels
B. Verify that all four identifiers are present
C. Add only the site name to every container
D. Replace the collection time with the laboratory result

37. Read the field note: "The cooler at Market 21 was above the facility's target range. The operator moved potentially affected food to a working cooler, called for repair, and agreed to document the correction." What is the main idea?

A. Immediate control and follow-up documentation were both used
B. The operator refused to correct the condition
C. The cooler temperature was never addressed
D. Repair documentation is unrelated to corrective action

38. Read the complaint summary: "Residents reported an odor after heavy rain. Records show a private sewage pump malfunction, but no evidence currently links the odor to drinking water." What is the most reasonable next step?

A. Declare the drinking water contaminated immediately
B. Close every nearby facility without further investigation
C. Investigate the sewage system while keeping the drinking-water conclusion open
D. Dismiss the complaint because rain occurred

39. Read the communication policy: "Put required actions and deadlines in plain language. Include technical detail in an attachment when readers may need it." Which approach follows the policy?

A. Use unexplained technical terms throughout the main notice
B. Lead with clear actions and place supporting detail afterward
C. Omit deadlines to keep the notice shorter
D. Put background detail before every required action

40. Read the closure note: "The pool remains closed until disinfectant records are recovered and clearance tests meet the release criteria." What can be inferred?

A. A verbal assurance automatically reopens it
B. The pool can reopen before clearance testing
C. The note provides no release condition

D. A record review alone is not enough to reopen the pool

41. Read the response procedure: "When a complaint arrives, assess immediate danger, gather relevant facts, document the contact, and communicate the next step." What should occur first?

A. Write the final report before gathering facts
B. Schedule a routine visit without triage
C. Assess whether an immediate danger exists
D. Close the complaint without documenting contact

42. Read the outbreak note: "Two patrons who ate the same cold pasta became ill. The information is insufficient to identify the source, so investigators will collect interviews and preparation records." What is best supported?

A. The shared food is proven to be the cause
B. No additional information is needed
C. The patrons could not have shared an exposure
D. The cold pasta is a lead for investigation, not a confirmed source

43. Read the sampling note: "A turbidity result increased after a pipe break. The sample was retested, and nearby sites did not show the same increase." What is the main point?

A. An unusual result should be verified before broad conclusions are made
B. Every nearby site definitely failed
C. Retesting is unnecessary after a pipe break
D. One result proves the entire system is affected

44. Read the report guidance: "Separate observations, measurements, and conclusions." Which statement is an observation?

A. The standing water violates every applicable rule

B. Standing water was visible at the rear entrance
C. The operator is careless
D. The hazard will certainly cause illness

45. Read the policy note: "Preventive plans are based on risk and required controls, not only on whether a facility has previously reported illness." What should an operator understand?

A. Controls are unnecessary when history is favorable
B. Only confirmed illness determines risk
C. A lack of past illness reports does not eliminate preventive controls
D. Past reports are the sole basis for a plan

46. Read the beach notice: "A monitor checks conditions after a severe-weather forecast. The beach is posted closed only when the measured condition reaches the stated threshold." What is best inferred?

A. The forecast prompts checking, but the measured condition determines closure
B. Every severe-weather forecast requires closure
C. Monitoring is unnecessary after a forecast
D. The threshold is irrelevant to the decision

47. Read the checklist guidance: "Use the checklist to avoid omissions, but record site-specific evidence rather than copying generic language." What is the main idea?

A. Generic wording is always preferred
B. Checklists should never be used
C. Site evidence is unnecessary when a checklist is complete
D. A checklist supports completeness but does not replace individualized documentation

48. Read the application note: "The permit application was returned because the required map was missing. The applicant may resubmit a complete application." What can reasonably be inferred?

A. The facility has been approved to operate without further review
B. The return is not necessarily a final denial of the application
C. The applicant is permanently barred from submitting another application
D. The missing map has no effect on application processing

49. Read the chain-of-custody instruction: "Record the sample ID, seal condition, and each transfer time. Document any change immediately." Why is this information important?

A. It replaces the laboratory analysis
B. It guarantees a positive result
C. It makes sample identification optional
D. It preserves traceability from collection through transfer

50. Read the interview guidance: "Begin with open questions and avoid suggesting an answer. Follow up for dates, locations, and actions." What is the primary reason?

A. The approach reduces the risk of steering the person's account
B. It eliminates the need to document answers
C. It guarantees the person remembers everything
D. It prevents all follow-up questions

51. Read the editing note: "The narrative says several containers were affected, while the table lists 3, 8, and 12. Replace the vague word with exact counts." What is the purpose?

A. The table should be deleted
B. Precise wording makes the narrative consistent with the recorded data
C. Exact counts make interpretation impossible
D. The word several always means three

52. Read the priority list: "Address an immediate health hazard first, a deadline-based permit issue second, and an educational visit third." Which order follows the list?

A. Educational visit, hazard, permit issue
B. Permit issue, educational visit, hazard
C. Immediate hazard, permit issue, educational visit
D. Hazard, educational visit, permit issue

53. Read the investigation note: "A resident reports an odor inside the well house and a taste at the faucet. The investigator asks where and when each condition occurs before choosing sampling locations." What is best supported?

A. All samples should be collected at one random location
B. The odor and taste must have one identical cause
C. Location and timing information guide the sampling plan
D. Sampling should occur before any questions are asked

54. Read the measurement note: "One inspector measures food-surface temperature while another measures ambient air temperature. Their numbers should not be compared as answers to the same question." What is the main idea?

A. Measurement methods must match the question being evaluated
B. All temperature measurements are interchangeable
C. Ambient air always equals food temperature
D. Different measurements cannot be recorded

55. Read the inspection conclusion: "No violation was observed during the inspection. The report also identifies the areas and records reviewed." What is best supported?

A. The facility can never have a future violation
B. The inspection proved every condition was perfect
C. The report should omit its limitations
D. The conclusion applies to the conditions and scope observed at that time

56. Read the childcare note: "The handwashing sink is blocked. Staff say they sanitize their hands instead, but the procedure requires an accessible sink for specified tasks." What follows?

A. The blocked sink is automatically acceptable
B. The substitute practice does not resolve the documented access problem
C. The procedure makes hand hygiene unnecessary
D. The staff statement proves the sink is accessible

57. Read the laboratory guidance: "A result is reported with an uncertainty range. When it is near an action threshold, interpret it using the method and uncertainty information." What should the reader avoid?

A. Treating a borderline result as an exact, uncertainty-free number
B. Reviewing the laboratory method
C. Considering the reported range
D. Comparing the result with the threshold

58. Read the public notice: "The boil-water advisory remains until the issuing authority announces clearance sampling has met its conditions." A resident asks whether one clear sample is enough. What is the best answer?

A. Assume one clear sample is always enough
B. Ignore the notice and decide independently
C. End the advisory immediately
D. Follow the issuing authority's stated clearance conditions

59. Read the evidence note: "Photographs received from a resident show a possible issue, but the date and location cannot be verified. The inspector will use them as a lead and confirm conditions on site." Why?

A. Photographs are never useful as information for an investigation
B. The images prove the issue occurred at this specific site today

C. Unverified images can prompt inquiry but do not establish current site conditions

D. On-site confirmation is unnecessary when photographs look convincing

60. Read the evaluation summary: "Complaint rates fell after training, but there was no comparison group or other control. The report says the decrease is associated with training, not that training caused it." What is the key distinction?

A. A decrease can never be measured

B. Association does not by itself establish causation

C. Training could not have any effect

D. A comparison group is unnecessary for interpretation

61. Read the language-access instruction: "Use a qualified interpreter for a critical interview when the person and inspector do not share enough language to communicate reliably. Do not rely on a child to interpret technical or sensitive information." What should the inspector do?

A. Ask a child to translate the entire interview

B. Proceed without checking understanding

C. Arrange qualified interpretation for the critical interview

D. Cancel all communication permanently

62. Read the narrative: "An employee used the same utensil for raw chicken and salad, then wiped it on a towel." Which statement best paraphrases the risk?

A. The salad may receive contamination from both the utensil and towel

B. The utensil and towel may transfer contamination from raw chicken to ready-to-eat salad

C. Raw chicken cannot transfer contamination to a clean serving utensil

D. The towel sterilized the utensil before it touched the salad

63. Read the emergency-planning note: "The contact list includes an alternate and an after-hours number. Staff test both quarterly." What is the purpose of this practice?

A. It replaces the facility's complete emergency response procedures
B. It guarantees that no emergency incident will occur at the facility
C. It makes maintaining current contact information unnecessary
D. It helps maintain reliable communication when the primary contact is unavailable

64. Read the spill-response note: "After identifying a potential chemical spill, the inspector keeps distance and stays upwind, calls trained responders, and does not enter the area." What is the first priority shown?

A. Protect personal safety while isolating and reporting the hazard
B. Collect a sample immediately
C. Enter the area to identify the chemical
D. Wash the spill into a drain

65. Read the sampling-plan note: "Locations are selected by a random method rather than by convenience. The plan records the selection process." What is the main benefit?

A. It guarantees every location has contamination
B. It removes the need for records
C. It selects only the easiest locations
D. It reduces selection bias and makes the sampling process more defensible

66. Read the corrective-action policy: "Deadlines consider risk, severity, and feasibility. The same deadline is not automatically used for every finding." What is the best summary?

A. Every finding requires the shortest possible deadline
B. Correction time should reflect the circumstances of the finding
C. Feasibility never matters
D. Risk and severity are unrelated to deadlines

67. Read the supervision note: "During debriefing, the supervisor asks the trainee to explain which evidence supports each conclusion." What is the supervisor primarily assessing?

A. Whether the trainee can connect documented evidence to professional reasoning
B. Whether the trainee can memorize every form
C. Whether conclusions can be made without evidence
D. Whether the trainee should avoid explaining decisions

68. In a treatment discussion, which statement correctly describes an acidic aqueous solution?

A. Its pH is exactly 7
B. Its pH is above 7
C. Its pH is below 7
D. It contains no dissolved ions

69. Which feature is characteristic of a typical bacterial cell?

A. It always contains a membrane-bound nucleus
B. It is made only of nonliving material
C. It lacks a membrane-bound nucleus
D. It cannot contain genetic material

70. Why can a virus reproduce only by using a susceptible host cell?

A. It depends on host-cell machinery for replication
B. It is a complete independent cell
C. It produces energy through its own organs
D. It reproduces by ordinary plant seeds

71. Which description best fits a protozoan?

A. A nonliving mineral particle

B. A multicellular metal structure
C. A type of electrical current
D. A usually single-celled eukaryotic organism

72. Yeasts and molds belong to which broad biological group?

A. Viruses
B. Fungi
C. Metals
D. Alkalis

73. Why are indicator organisms useful in water-quality evaluation?

A. They make all water pathogens harmless
B. They are always the only organisms present
C. They can signal possible contamination without requiring direct testing for every pathogen
D. They replace every sampling and laboratory step

74. Which action most directly interrupts transmission in the chain of infection?

A. Effective hand hygiene after contamination
B. Increasing the number of susceptible hosts
C. Leaving contaminated surfaces untouched
D. Reducing ventilation during an airborne event

75. What does the incubation period describe?

A. The time needed to collect a sample
B. The time between exposure and the appearance of symptoms
C. The time after recovery when immunity ends
D. The time required to sterilize equipment

76. What is a principal effect of vaccination?

A. It makes every microorganism harmless immediately
B. It removes the need for all hygiene
C. It converts bacteria into minerals
D. It helps the immune system develop specific memory

77. What is a biofilm?

A. A single isolated atom suspended in the surrounding air
B. A thin layer consisting only of purified distilled water
C. A completely sterile surface with no biological activity
D. A community of microorganisms embedded in a protective material on a surface

78. Why can dissolved oxygen decrease when biodegradable organic matter enters water?

A. Organic matter always creates oxygen
B. Oxygen changes into table salt
C. Microorganisms use oxygen while decomposing the organic matter
D. Decomposition stops all biological activity

79. What does biochemical oxygen demand generally indicate?

A. The oxygen microorganisms may consume while breaking down biodegradable material
B. The exact number of fish in a stream
C. The water's electrical resistance only
D. The mass of sediment that has settled

80. In oxidation-reduction terminology, oxidation is commonly defined as what?

A. Gain of electrons
B. Loss of electrons
C. Loss of neutrons only
D. Gain of temperature

81. Why can suspended turbidity interfere with chemical disinfection?

A. Turbidity guarantees complete microbial inactivation by any disinfectant
B. Particles convert every disinfectant into oxygen during treatment
C. Particles can shield microorganisms or consume disinfectant demand
D. Turbidity removes the need for sufficient disinfectant contact time

82. What is the main purpose of coagulation in a conventional water-treatment sequence?

A. Destabilize fine particles so they can join into larger aggregates
B. Evaporate all water from the treatment process
C. Destroy every dissolved chemical in the water
D. Increase particle stability so later filtration becomes impossible

83. What occurs during flocculation?

A. Water is converted directly into vapor
B. Destabilized particles gently collide and form larger flocs
C. All particles dissolve into gas
D. The pH scale is replaced by a pressure scale

84. How does sedimentation remove many suspended particles?

A. A magnet attracts every dissolved molecule

B. Sunlight converts particles to oxygen
C. Pressure forces all solids upward
D. Gravity allows denser particles to settle out of the water

85. What is the basic role of filtration in water treatment?

A. Pass water through a medium that retains some particles
B. Add particles so they become larger
C. Convert all contaminants into heat
D. Remove the need for source protection

86. Why can activated carbon help reduce some tastes, odors, and organic compounds?

A. Carbon makes every contaminant radioactive
B. The compounds are always destroyed by freezing
C. Carbon raises every solution to pH 14
D. Certain compounds adsorb onto the carbon surface

87. What phase change occurs when liquid water becomes water vapor?

A. Freezing
B. Vaporization
C. Condensation
D. Deposition

88. In which direction does heat naturally flow when two objects at different temperatures touch?

A. From the cooler object toward the warmer object
B. Only from a solid to a liquid
C. From the warmer object toward the cooler object
D. In no direction under any condition

89. How is density calculated?

A. Mass divided by volume
B. Volume divided by mass squared
C. Mass multiplied by volume
D. Temperature divided by pressure

90. For a fixed amount of gas at constant temperature, what generally happens when its volume decreases?

A. Its pressure decreases to zero
B. Its pressure increases
C. Its mass disappears
D. Its temperature must double

91. What is corrosion?

A. The physical counting of bacteria only
B. The freezing of every liquid
C. The removal of all oxygen from a room
D. The deterioration of a material, often metal, through chemical or electrochemical reactions

92. Which water condition generally increases the likelihood that lead will leach from plumbing?

A. Chemically stable, noncorrosive water
B. Dry air with no contact
C. Acidic or corrosive water
D. Pure nitrogen isolated from plumbing

93. What does nitrification generally do in an aerobic biological process?

A. Converts ammonia to more oxidized nitrogen forms while consuming oxygen
B. Converts nitrate directly into table sugar
C. Removes all nitrogen without biological activity
D. Prevents microorganisms from using oxygen

94. What is a principal function of a septic tank?

A. Sterilize all sewage immediately without any additional treatment
B. Pump every solid directly into the surrounding groundwater
C. Allow solids to settle while anaerobic biological processes break down some organic matter
D. Convert sewage into drinking water without any downstream treatment

95. Which condition most directly promotes excessive algae growth in a surface-water body?

A. A complete absence of nutrients and light
B. Sterile water sealed from all energy
C. A reduction in all biological activity
D. An excess supply of nutrients together with sufficient light

96. What is a vector in infectious-disease transmission?

A. A nonliving pH measurement
B. An organism that carries and transmits a pathogen
C. A disinfectant contact-time record
D. A type of sediment particle

97. What is a zoonosis?

A. A disease caused only by minerals
B. A disease that can be transmitted between animals and humans
C. A chemical reaction in a pipe
D. A measurement of water hardness

98. Which route of exposure occurs when a person breathes in contaminated airborne droplets or particles?

A. Ingestion
B. Absorption through a cut
C. Inhalation
D. Injection

99. Why must a disinfectant generally remain in contact with water long enough to work?

A. Microbial inactivation requires time as well as adequate disinfectant conditions
B. Contact time makes all contaminants visible
C. Disinfectants work only after the water freezes
D. Time allows untreated water to bypass the process

100. Why do antibiotics generally not treat viral infections?

A. Viruses are simply larger forms of ordinary bacterial cells
B. Antibiotics work only when they are added to drinking water
C. Viruses contain no genetic material for replication
D. Antibiotics target bacterial structures or processes that viruses do not possess

Practice Exam 21: Answer Key and Explanations

1. B — The keyed choice is correct because dividing 870 records by 6 workdays gives 145 records per day. The other choices use a different divisor, multiply instead of average, or report the total without

dividing. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

2. D — The keyed choice is correct because multiplying 1300 by 0.18 gives 234 samples. The other choices use a different percentage, round the percentage incorrectly, or report the samples not selected. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

3. A — The keyed choice is correct because dividing 1050 by 5 and multiplying by 3 gives 630 files. The other choices use only one fifth, use one half, or multiply by an unrelated factor. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

4. C — The keyed choice is correct because aligning the decimal places and adding 15.25 and 7.85 gives 23.1 liters. The other choices drop a decimal digit, add incorrectly, or increase the total by an extra half liter. This applies the stated values in the stated order and avoids common unit errors.

5. C — The keyed choice is correct because the hourly rate is 75 divided by 3, or 25 samples per hour. The other choices divide by a different quantity, subtract the values, or multiply samples by hours. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

6. D — The keyed choice is correct because 15% is removed, so 85% remains; 0.85 multiplied by 520 equals 442 gallons. The other choices report the amount removed, subtract 15 gallons, or add the loss to the starting amount. This applies the stated values in the stated order and avoids common unit errors.

7. A — The keyed choice is correct because volume is length times width times depth, so 29 × 5 × 4 equals 580 cubic feet. The other choices add the dimensions, omit one dimension, or double the correct product. This applies the stated values in the stated order and avoids common unit errors.

8. B — The keyed choice is correct because converting 1800 milliliters to 1.8 liter and adding it gives 14.8 liters. The other choices convert milliliters incorrectly, subtract an unrelated amount, or multiply instead of add. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

9. C — The keyed choice is correct because 99 divided by 132 equals 0.75, which is 75%. The other choices use the percentage that failed, calculate a different fraction, or round the result upward. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

10. A — The keyed choice is correct because one round trip is 17.4 miles, and 24 such trips total 417.6 miles. The other choices count one direction, count only one round trip, or use an incorrect trip multiplier. This applies the stated values in the stated order and avoids common unit errors.

11. B — The keyed choice is correct because one-fourth means dividing 1160 by 4, which gives 290 records. The other choices use one-eighth, one-half, or report the records left outside the assignment.

This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

12. D — The keyed choice is correct because an equal division assigns 168 visits across 6 staff members, giving 28 visits each. The other choices use a different divisor, round the quotient incorrectly, or multiply the total by the staff count. This applies the stated values in the stated order and avoids common unit errors.

13. A — The keyed choice is correct because 12% of 3300 is 396, and adding that increase produces 3,696 inspections. The other choices add 12 inspections, calculate 11%, or add 20% instead of 12%. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

14. B — The keyed choice is correct because multiplying the two decimal factors gives 3.51. The other choices add or subtract instead of multiply, or use an inflated sum. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

15. C — The keyed choice is correct because multiplying the flow rate of 57 gallons per minute by 29 minutes gives 1,653 gallons. The other choices add the rate and time, use one minute too few, or use one minute too many. This applies the stated values in the stated order and avoids common unit errors.

16. D — The keyed choice is correct because 5% is 0.05, and 0.05 multiplied by 2960 equals 148 entries. The other choices use a different percentage or report entries not selected. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

17. A — The keyed choice is correct because the ratio has five parts, so two-fifths of 260 equals 104 locations. The other choices use one part, one-half, or three-fifths for the first group. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

18. C — The keyed choice is correct because the four task times total 184 minutes, and dividing by 4 gives 46 minutes. The other choices select a middle value, divide by a wrong count, or use a large individual time as the average. This applies the stated values in the stated order and avoids common unit errors.

19. D — The keyed choice is correct because subtracting the empty cooler's mass from the full mass gives 24.25 kilograms. The other choices subtract an unrelated amount, add the masses, or reverse the subtraction. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

20. B — The keyed choice is correct because 40% of 170 is 0.40 multiplied by 170, or 68 gallons. The other choices use a different fraction, calculate the unfilled amount, or treat 45 as a gallon count. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

21. A — The keyed choice is correct because one of the five total parts is concentrate, so one-fifth of 155 equals 31 liters. The other choices use one-tenth, one-quarter, or the water fraction. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

22. D — The keyed choice is correct because the rectangle's area is length times width, so 33.5 × 8 equals 268 square feet. The other choices add the dimensions, reduce the length incorrectly, or use an unrelated width. This applies the stated values in the stated order and avoids common unit errors.

23. B — The keyed choice is correct because dividing 279 by 3 and taking two parts gives 186 sites. The other choices use one-third, one-half, or three-quarters of the total. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

24. C — The keyed choice is correct because dividing both terms of 12:20 by 4 reduces the ratio to 3:5. The other choices divide the terms unequally, use another common ratio, or leave the ratio unreduced. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

25. A — The keyed choice is correct because converting the 70-minute interval to an hour gives 16.2 miles per hour. The other choices report miles per minute, report the distance without conversion, or use an unsupported speed increase. This applies the stated values in the stated order and avoids common unit errors.

26. D — The keyed choice is correct because 650 milliliters equals 0.65 liter, and adding 3.5 gives 4.15 liters. The other choices convert milliliters incorrectly, omit the first amount, or multiply the quantities. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

27. B — The keyed choice is correct because 30% is removed, leaving 70% of 570, or 399 files. The other choices report only the reduction, subtract 30 files, or add the reduction. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

28. A — The keyed choice is correct because multiplying 28 boxes by 24 bags per box gives 672 bags. The other choices add the quantities, count one fewer box, or use an incorrect number per box. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

29. C — The keyed choice is correct because total staff time is 25 multiplied by 3.5 hours, or 87.5 staff-hours. The other choices add staff and hours, omit one staff member, or round the time to four hours. This applies the stated values in the stated order and avoids common unit errors.

30. B — The keyed choice is correct because the increase is 33, and dividing by the original 132 gives 25%. The other choices divide by the new total, report the raw increase as a percent, or round to 30%. This applies the stated values in the stated order and avoids common unit errors.

31. D — The keyed choice is correct because dividing 15 liters by 0.6 liter per test gives 25 complete tests. The other choices subtract an arbitrary amount, divide by an unrelated amount, or multiply the

quantities. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

32. C — The keyed choice is correct because one-third of 810 is 270, and removing 10% leaves 243 valid samples. The other choices report only invalid samples, forget the one-third step, or subtract 10% from all submitted samples. This applies the stated values in the stated order and avoids common unit errors.

33. C — The keyed choice is correct because multiplying 6 kilogram by 1,000 grams per kilogram gives 6,000 grams. The other choices move the decimal too few places or multiply by too large a conversion factor. This applies the stated values in the stated order and avoids common unit errors. This keeps the reasoning tied to the question.

34. A — The keyed choice is correct because adding the three team totals gives 43 + 60 + 78 = 181 visits. The other choices omit one team, use two totals with an extra unsupported amount, or add ten visits. This applies the stated values in the stated order and avoids common unit errors.

35. D — The keyed choice is correct because the note says the screen door is repaired and identifies the sink as a separate current deficiency. The other choices contradict the repair, make an unsupported broad conclusion, or disregard the new observation. The answer is supported by the passage's words, not outside assumptions.

36. B — The keyed choice is correct because the instruction lists four identifiers that must be checked before shipping. The other choices skip the required verification, omit required identifiers, or substitute information not requested. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

37. A — The keyed choice is correct because the note describes both an immediate protective action and a documented repair process. The other choices deny the correction, ignore the temperature response, or separate documentation from the response without support. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

38. C — The keyed choice is correct because the summary supports investigating the documented pump problem without claiming an unproven drinking-water impact. The other choices turn a possibility into a finding, take an excessive action, or dismiss relevant evidence. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

39. B — The keyed choice is correct because the policy prioritizes understandable actions and deadlines while preserving technical detail as support. The other choices remove required information, obscure the message with jargon, or reverse the stated communication order. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

40. D — The keyed choice is correct because the note names both records and clearance tests as conditions for release. The other choices omit a stated condition, invent an automatic reopening rule, or deny that conditions are provided. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

41. C — The keyed choice is correct because the procedure explicitly places immediate-danger assessment before the other listed actions. The other choices reorder the procedure, skip triage, or close the matter without required information. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

42. D — The keyed choice is correct because the note identifies a common exposure but expressly says the evidence is insufficient for confirmation. The other choices replace an investigative lead with proof, stop the planned inquiry, or contradict the shared-exposure fact. The answer is supported by the passage's words, not outside assumptions.

43. A — The keyed choice is correct because the note emphasizes retesting and comparison with nearby sites before deciding on scope. The other choices generalize from one result, reject verification, or claim system-wide impact without support. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

44. B — The keyed choice is correct because the statement describes what was directly seen without adding a rule, judgment, or prediction. The other choices state an unsupported conclusion, assign motive, or predict an outcome not established by observation. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

45. C — The keyed choice is correct because the policy explicitly says risk and required controls remain relevant even without reported illness. The other choices treat history as the only evidence, remove preventive measures, or reverse the policy. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

46. A — The keyed choice is correct because the notice distinguishes the forecast as a trigger for monitoring from the measured threshold as the closure basis. The other choices treat the forecast as the final decision, skip monitoring, or ignore the stated threshold. The answer is supported by the passage's words, not outside assumptions.

47. D — The keyed choice is correct because the guidance assigns the checklist a supporting role while requiring evidence specific to the site. The other choices overstate the checklist, reject it entirely, or remove the evidence requirement. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

48. B — The keyed choice is correct because the note provides an opportunity to resubmit, which is inconsistent with treating the return as a permanent denial. The other choices claim approval, invent a permanent bar, or disregard the stated missing requirement. The answer is supported by the passage's words, not outside assumptions.

49. D — The keyed choice is correct because the listed records show who handled the sample and whether its condition changed. The other choices confuse documentation with analysis, promise a result, or remove identification. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

50. A — The keyed choice is correct because open, neutral questions allow information to emerge before the interviewer narrows the details. The other choices claim documentation is unnecessary, promise perfect memory, or prohibit the required follow-up. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

51. B — The keyed choice is correct because the requested edit aligns the prose with the numerical information already recorded. The other choices remove supporting data, claim precision is harmful, or assign a universal meaning to a vague word. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

52. C — The keyed choice is correct because the sentence explicitly ranks the three tasks in that sequence. The other choices reverse the priority order or move the lower-risk educational visit ahead of the stated hazard. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

53. C — The keyed choice is correct because the note connects the resident's location-and-time details to the later choice of sampling sites. The other choices assume one cause, ignore the details, or reverse the described sequence. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

54. A — The keyed choice is correct because the note distinguishes the measured property and explains why unlike measurements do not answer the same question. The other choices treat different properties as equivalent, assume equality, or prohibit useful recording. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

55. D — The keyed choice is correct because the wording limits the conclusion to what was observed and reviewed during the inspection. The other choices turn a time-limited finding into a guarantee, claim perfection, or remove scope information. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

56. B — The keyed choice is correct because the note states an access requirement and separately reports that the sink is blocked. The other choices replace the documented condition with an unsupported assumption or misread the procedure. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

57. A — The keyed choice is correct because the guidance specifically directs attention to uncertainty when the result is near the threshold. The other choices do the very review the guidance requests or treat a range as if it had no limits. The answer is supported by the passage's words, not outside assumptions.

58. D — The keyed choice is correct because the notice makes clearance depend on the authority's conditions rather than a number invented by the reader. The other choices add an unstated rule, bypass the issuing authority, or end the advisory without clearance. The answer is supported by the passage's words, not outside assumptions.

59. C — The keyed choice is correct because the note assigns the images a limited lead function because their context cannot be verified. The other choices reject potentially useful information, overstate proof,

or skip confirmation. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

60. B — The keyed choice is correct because the summary separates a change occurring after training from proof that training produced the change. The other choices deny measurement, claim the effect is impossible, or dismiss the value of comparison. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

61. C — The keyed choice is correct because the instruction directly identifies qualified interpretation as the reliable approach for a critical interview. The other choices use the practice expressly discouraged, ignore communication quality, or take an unnecessarily permanent step. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

62. B — The keyed choice is correct because the sequence describes contact with raw chicken followed by ready-to-eat food, with wiping that does not establish disinfection. The other choices assume wiping sterilizes, deny transfer, or reverse the exposure sequence. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

63. D — The keyed choice is correct because the alternate number and periodic testing address availability and reliability during an incident. The other choices confuse communication with prevention, promise an outcome the note cannot guarantee, or remove the purpose of the list. The answer is supported by the passage's words, not outside assumptions.

64. A — The keyed choice is correct because the actions emphasize avoiding exposure and obtaining trained response before investigation. The other choices prioritize evidence collection over safety, enter without training, or create an additional pathway. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

65. D — The keyed choice is correct because random selection limits convenience-based choices and documenting the method makes the process reviewable. The other choices promise a contamination result, reject documentation, or describe the opposite of random selection. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

66. B — The keyed choice is correct because the policy identifies multiple factors and rejects a one-size-fits-all deadline. The other choices ignore the stated factors or impose a universal rule the policy does not support. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

67. A — The keyed choice is correct because the question focuses on the logical connection between evidence and conclusions. The other choices replace reasoning with memorization, remove the evidence link, or reverse the purpose of debriefing. The answer is supported by the passage's words, not outside assumptions. This keeps the reasoning tied to the question.

68. C — The keyed choice is correct because on the conventional pH scale, acidic solutions have values below neutral 7. The other choices describe neutral or basic conditions, or incorrectly claim that acidity

eliminates ions. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

69. C — The keyed choice is correct because bacteria are prokaryotic cells, so their genetic material is not enclosed in a membrane-bound nucleus. The other choices describe a eukaryotic feature or deny the living cell's genetic material. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

70. A — The keyed choice is correct because viruses carry genetic instructions but rely on host-cell structures and processes to make more virus particles. The other choices assign cellular independence, invent organs, or confuse viral replication with plant reproduction. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

71. D — The keyed choice is correct because protozoa are commonly described as single-celled eukaryotic organisms. The other choices confuse a biological organism with a physical material or an electrical concept. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

72. B — The keyed choice is correct because yeasts and molds are fungi, a group separate from viruses and nonbiological chemical categories. The other choices apply a viral label or treat a biological group as a material or pH class. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

73. C — The keyed choice is correct because indicator testing provides practical evidence about sanitary conditions when testing for every possible pathogen would be impractical. The other choices promise harmlessness, claim exclusivity, or overstate what an indicator result can replace. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

74. A — The keyed choice is correct because hand hygiene can remove or inactivate organisms before they move from a contaminated source to another person. The other choices increase exposure opportunities, preserve contamination, or worsen airborne concentration. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

75. B — The keyed choice is correct because incubation is the interval after infection or exposure before symptoms become apparent. The other choices confuse disease timing with sampling, recovery, or equipment processing. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

76. D — The keyed choice is correct because vaccination exposes the immune system to information that supports a faster, targeted response later. The other choices promise universal immediate protection, eliminate other controls, or describe a nonbiological transformation. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

77. D — The keyed choice is correct because biofilms are organized microbial communities attached to surfaces and surrounded by a self-produced matrix. The other choices confuse a microbial community

with an atom, pure water, or sterility. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

78. C — The keyed choice is correct because microbial decomposition can increase oxygen demand, reducing the oxygen remaining in the water. The other choices reverse the oxygen relationship, invent a chemical conversion, or deny microbial activity. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

79. A — The keyed choice is correct because BOD reflects oxygen use associated with microbial decomposition of biodegradable material. The other choices substitute unrelated population, electrical, or sediment measurements. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

80. B — The keyed choice is correct because the mnemonic OIL means oxidation is loss, while reduction is gain of electrons. The other choices reverse oxidation and reduction or substitute nuclear or thermal changes. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

81. C — The keyed choice is correct because suspended particles can protect organisms and can increase the demand placed on a disinfectant. The other choices promise better disinfection, invent a conversion, or remove the need for adequate contact. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

82. A — The keyed choice is correct because coagulation reduces the forces keeping fine particles dispersed, preparing them for flocculation and removal. The other choices confuse coagulation with evaporation or chemical destruction, or state the opposite effect. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

83. B — The keyed choice is correct because gentle mixing promotes collisions that build larger aggregates suitable for later settling or filtration. The other choices describe a phase change, dissolution into gas, or unrelated measurement change. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

84. D — The keyed choice is correct because settling separates particles from water when their effective density and size allow gravity to move them downward. The other choices apply magnetism or sunlight without support, or reverse the direction of settling. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

85. A — The keyed choice is correct because a filter provides a physical barrier or attachment surface that can retain particles and some organisms. The other choices describe adding contaminants, complete thermal conversion, or claim one process replaces all protection. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

86. D — The keyed choice is correct because activated carbon has a large surface that can attract and hold certain compounds by adsorption. The other choices confuse adsorption with radioactivity,

freezing, or an automatic pH change. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

87. B — The keyed choice is correct because vaporization is the change from a liquid to a gas. The other choices reverse the direction of the phase change or choose a different gas-to-liquid or gas-to-solid process. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

88. C — The keyed choice is correct because thermal energy transfers spontaneously down a temperature gradient until the objects approach thermal equilibrium. The other choices reverse the gradient, impose an irrelevant material rule, or deny ordinary heat transfer. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

89. A — The keyed choice is correct because density expresses how much mass occupies a given volume, so density equals mass divided by volume. The other choices reverse the ratio, multiply instead of divide, or use unrelated variables. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

90. B — The keyed choice is correct because Boyle's law describes an inverse pressure-volume relationship under the stated constant-temperature condition. The other choices reverse the relationship, confuse pressure with mass, or add an unstated temperature change. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

91. D — The keyed choice is correct because corrosion describes material deterioration caused by reactions with the surrounding environment. The other choices confuse material damage with microbiological counting, phase change, or room ventilation. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

92. C — The keyed choice is correct because acidic or otherwise corrosive water can react with plumbing materials and promote dissolution of lead. The other choices describe a condition that reduces contact or corrosivity, or replace water chemistry with unrelated gases. The principle explains the result and rules out the tempting alternatives.

93. A — The keyed choice is correct because nitrifying microorganisms oxidize ammonia through nitrogen transformations and require oxygen for the process. The other choices invent a sugar conversion, deny biology, or reverse the oxygen requirement. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

94. C — The keyed choice is correct because settling and anaerobic digestion are central tank functions, while the system still requires appropriate downstream treatment. The other choices promise complete sterilization or potable water, or describe an unsafe discharge. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

95. D — The keyed choice is correct because algae can multiply rapidly when nutrients and light support photosynthesis and growth. The other choices remove the resources algae require or confuse

growth with sterility. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

96. B — The keyed choice is correct because vectors such as mosquitoes can move pathogens between hosts, making the organism part of the transmission pathway. The other choices confuse a living transmitter with a measurement, record, or particle. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

97. B — The keyed choice is correct because zoonosis refers to an infection or disease that crosses between animal and human populations. The other choices replace disease transmission with chemistry or a water-quality measurement. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question.

98. C — The keyed choice is correct because inhalation means taking material into the respiratory tract by breathing. The other choices describe swallowing, skin entry, or direct injection instead of breathing. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

99. A — The keyed choice is correct because disinfection requires sufficient contact time under appropriate conditions to damage or inactivate organisms. The other choices confuse inactivation with visibility, freezing, or bypassing treatment. The principle explains the result and rules out the tempting alternatives. This keeps the reasoning tied to the question. That distinction is the practical point being tested.

100. D — The keyed choice is correct because viral particles lack the bacterial targets affected by antibiotics, so the drug class is not generally effective against viruses. The other choices misclassify viruses, restrict antibiotics to water treatment, or deny viral genetic material. The principle explains the result and rules out the tempting alternatives.