

## Test Question Formats

### Single One Best Answer Questions

This is the traditional, most frequently used multiple choice format. It consists of a statement or question followed by three to twenty-six options that are in alphabetical or logical order. The response options in this format are lettered (e.g., A, B, C, D, E). Examinees are required to select the best answer to the question. Other options may be partially correct, but there is only ONE BEST answer.

#### *Strategies for Answering Single One Best Answer Test Questions •*

- Read each question carefully. It is important to understand what is being asked.
- Try to generate an answer and then look for it in the option list.
- Alternatively, read each option carefully, eliminating those that are clearly incorrect.
- Of the remaining options, select the one that is most correct.
- If unsure about an answer, it is better to guess, since unanswered questions are automatically counted as wrong answers.

#### *Single One Best Answer - Example Item*

The capital of the United States of America is

- A. Albany, New York
- B. Buffalo, New York
- C. New York, New York
- D. Washington, D.C.
- E. Wilmington, Delaware

### Matching Sets

This format consists of a series of questions related to a common topic. All matching sets contain set-specific instructions, a list of lettered response options, and at least two questions. There will be between four and twenty-six response options. Each set is preceded by a box that indicates the number of questions in the set associated with the response options that follow. Examinees are directed to select one answer for each question in the set. Questions will be presented one at a time, with instructions and response options repeated for each subsequent question.

#### *Strategies for Answering Matching Sets*

- Begin each set by reading through the option list to become familiar with the available responses.
- Read each question carefully.
- Within a set, some options may be used several times, while other options may not be used at all. Respond to each question independently.
- For matching sets with large numbers of options, try to generate an answer to the question and then locate the answer in the option list. This is more efficient than considering each option individually.

*Matching Sets - Example Item 1*

The response options for the next 2 items are the same. Select one answer for each item in the set.

For each statement from a county health department’s strategic plan, select the most appropriate component (A-E).

- A. Evaluation
- B. Goal
- C. Mission
- D. Objective
- E. Vision

The health department is committed to protecting and promoting the health of the county’s residents

**Answer: C**

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For each statement from a county health department’s strategic plan, select the most appropriate component (A-E).

- A. Evaluation
- B. Goal
- C. Mission
- D. Objective
- E. Vision

Reduce the number of teenagers who begin to smoke

**Answer: B**

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*Matching Sets - Example Item 2*

This item format consists of a series of items related to a common vignette. Each set is preceded by a gray box that indicates the number of items associated with the vignette. There is no need to memorize the information contained in the vignette, because you may return to it anytime by clicking the item range on the navigation bar (which will be on the left-hand side of your screen during testing). An End of Set statement will be shown at the end of the last item in the set.

The following vignette applies to the next 3 items.

The new director of a county health department is getting acquainted with her staff. After several weeks of observing how her two associate directors supervise their subordinates, she notes striking differences in their management styles.

**Item 1 of 3**

One associate director manages employees by assuming that they are highly motivated. He tells members of his staff that they can time-shift their work hours to accommodate their family schedules as long as they get their work done. This director's approach to management exemplifies which of the following leadership theories?

- A. Contingency theory
- B. House's path goal theory
- C. McGregor's theory Y
- D. Theory Z

Answer: C

**Item 2 of 3**

The other associate director assumes that employees find no satisfaction in their work and are exclusively motivated by their salaries. This associate director's approach to management exemplifies which of the following leadership theories?

- A. Contingency theory
- B. House's path goal theory
- C. McGregor's theory X
- D. Theory Z

Answer: C

**Item 3 of 3**

The director wants to adopt a management strategy that will meet the needs of all personnel in her department, including the two associate directors and their diverse staffs and responsibilities. The most appropriate leadership style for this director is one informed by which of the following theories?

- A. Contingency theory
- B. House's path goal theory
- C. McGregor's theory X
- D. Theory Z

**End of Set**

Answer: A

## Sample Questions

The following pages include 18 sample test questions. These questions are the same as those you may install on your computer from the NBPHE website. These sample questions are illustrative of the types of questions used in the NBPHE examination. Although the questions exemplify content on the examination, they may not reflect the content coverage on individual examinations. Questions of the same format are grouped together in this booklet. In the actual examination, questions may appear randomly in the examination; they will not be grouped according to type or specific content. In the actual examination, the questions will be presented one at a time in a format designed for easy on-screen reading, including use of exhibit buttons (separate windows) and some pictorials.

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1. A community-based study of a program to increase physical activity is conducted, and the findings are evaluated. A small  $p$  value with an estimate is reported. Which of the following is the best interpretation of this result?
  - A. It is likely the estimate differs from the true value because of bias
  - B. It is likely the estimate differs randomly and systematically from the norm because of inter-rater variability
  - C. It is unlikely the estimate differs from the average because of chance
  - D. It is unlikely the estimate differs from the expected value because of confounding
  - E. It is unlikely the estimate differs from the null value because of random variability

Answer: E

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The following vignette applies to the next 3 items.

A pilot study is conducted to examine whether a new drug effectively decreases cholesterol levels over a six-week period. Twelve participants are enrolled, and serum cholesterol levels are measured before and after the six-week treatment period. Investigators plan to use a paired  $t$ -test to examine whether the drug was effective in reducing cholesterol levels.

### Item 1 of 3

2. The paired  $t$ -test is more appropriate for analysis of the results than a two-sample  $t$ -test for which of the following reasons?
  - A. Dependence between the pre-test and post-test measurements
  - B. Elimination of noise due to confounders
  - C. Heterogeneous variances of the two groups
  - D. Non-randomness of the timing of the measurements
  - E. Potential non-normality of the responses

Answer: A

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**Item 2 of 3**

3. Which of the following are the degrees of freedom for this paired  $t$ -test?
- A. 9
  - B. 10
  - C. 11
  - D. 12
  - E. 13

Answer: C

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**Item 3 of 3**

4. If the  $p$  value were calculated to be 0.015, which of the following would be the most appropriate interpretation of this  $p$  value?
- A. The probability of seeing results as unusual as the observed under the alternative hypothesis is very small
  - B. The probability of seeing results as unusual as the observed under the null hypothesis is very small
  - C. The probability that the alternative hypothesis is false is very small
  - D. The probability that the alternative hypothesis is true is very small
  - E. The probability that the null hypothesis is true is very large

**End of Set**

Answer: B

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5. Which of the following statements best describes an intent-to-treat analysis?
- A. Analyses compare characteristics of participants who did and did not adhere to the randomized treatment
  - B. Analyses exclude all participants who did not adhere to the assigned randomized treatment
  - C. Analyses maintain the original randomized assignment of treatments in the definition of intervention and control groups
  - D. Analyses reorganize participants into intervention and control groups based on their actual participation

Answer: C

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6. A study is conducted to examine whether elderly women in at-home care settings maintain more cognitive ability than women who are residents of skilled nursing care facilities. Two groups of 30 elderly women were recruited independently: one group included women living at home with a caregiver, and the second group included women living in skilled nursing care facilities. The women were asked to perform a task and received scores on the execution of the task (higher scores indicated higher cognitive functioning). Which of the following is the most appropriate approach for analyzing these data?
- A. Chi-square ( $\chi^2$ ) test
  - B. Correlation analysis
  - C. Paired *t*-test
  - D. Trend test
  - E. Two-sample *t*-test

Answer: E

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7. A study is conducted to evaluate the relationship between pet ownership and having depressive symptoms. Seventy participants are recruited. Each subject is identified as a current pet owner or a non-pet owner. Participants are categorized as having or not having symptoms of depression. Which of the following is the most appropriate method to evaluate the association between pet ownership and having depressive symptoms in this population?
- A. Chi-square ( $\chi^2$ ) test
  - B. Paired *t*-test
  - C. Test of regression parameters
  - D. Trend test
  - E. Two-sample *t*-test

Answer: A

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8. The epidemic of methyl mercury poisoning in Minamata, Japan, in the 1950s illustrated contamination of which of the following?
- A. Dairy products
  - B. Feed grain
  - C. Fish
  - D. Soil
  - E. Water

Answer: C

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The following vignette applies to the next 2 items.

The Ministry of Health of a developing country is considering the nationwide implementation of a test using biomarkers to screen for breast cancer. The test is delivered in health clinics in two similar regions of the country, with the following results:

	Region A	Region B
Sensitivity	70%	80%
Specificity	85%	95%

The positive and negative predictive values are different between the two regions.

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**Item 1 of 2**

9. Which of the following is the most likely cause of the difference in the test’s sensitivity and specificity between the two regions?
- A. The incidence of disease is different between the two regions
  - B. Length-biased sampling has occurred
  - C. The prevalence of disease is different between the two regions
  - D. The test is detecting the disease earlier in its natural history in one of the regions
  - E. The test was not administered in similar conditions in the two regions

Answer: E

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**Item 2 of 2**

10. Which of the following is the most likely cause of the difference in the test’s predictive values between the two regions?
- A. Length-biased sampling has occurred
  - B. The prevalence of disease is different between the two regions
  - C. The severity of disease is different between the two regions
  - D. The test is detecting the disease earlier in its natural history in one of the regions
  - E. The test was not administered in similar conditions in the two regions

**End of Set**

Answer: B

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The response options for the next 5 items are the same. Select one answer for each item in the set.

- A. Bill and Melinda Gates Foundation
  - B. Centers for Disease Control and Prevention
  - C. Local public health agencies
  - D. National Institutes of Health
  - E. State public health agencies
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For each public health scenario, select the most appropriate lead organization (A-E).

- 11. Focuses on crisis-oriented infectious disease such as anthrax diagnosed in postal workers
- 12. Focuses on basic science research aimed at curing human disease such as investigating the use of statin drugs to reduce the incidence of Alzheimer's disease
- 13. Primarily focuses on improving global health, addressing diseases such as HIV, malaria, and tuberculosis
- 14. Holds the primary constitutional authority to address policies concerning improvement of birth outcomes including low birth weight, preterm births, and infant mortality and morbidity
- 15. Focuses on day-to-day operations of public health clinics

11. Answer: B; 12. Answer: D; 13. Answer: A; 14. Answer: E; 15. Answer: C

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The following vignette applies to the next 3 items.

A study investigated the effects of exposure to radioactive fallout from the Hanford Nuclear Site in Washington State in the 1940s and 1950s and subsequent development of thyroid cancer among persons exposed as children and adolescents. Scientists used birth data from the study area to trace and contact subjects to participate in the study. Screening consisted of thyroid palpation, ultrasonography of the thyroid gland, and measurement of thyroid hormone concentrations in serum and urine. Individual thyroid radiation doses were estimated from interview data concerning place of residence and dietary history. As a result of screening, 19 subjects were diagnosed with thyroid cancer.

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**Item 1 of 3**

16. Which of the following terms best describes this type of study design?

- A. Case-control
- B. Cross-sectional
- C. Ecological
- D. Prospective cohort
- E. Retrospective cohort

Answer: E

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**Item 2 of 3**

17. Which of the following is the most appropriate measure of effect for this type of study?

- A. Correlation coefficient
- B. Odds ratio
- C. Prevalence odds ratio
- D. Regression coefficient
- E. Risk ratio

Answer: E

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**Item 3 of 3**

18. Which of the following terms is most appropriate to describe the cases of thyroid cancer identified during the first screening in this study?

- A. Incident
- B. Interval
- C. Prevalent
- D. Recurrent

**End of Set**

Answer: C

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