

**New York State
Department of Civil Service**

Committed to Innovation, Quality, and Excellence

A Guide to the Written Test
for the
State Research Series

Including examinations for:

**Economists
Econometricians
Statisticians
Biostatisticians
Program Research Specialists**

Opportunities at **work.**



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This test guide covers all subject areas for all of the examinations listed on page 4. Most candidates will only be taking a small number of examinations covering only some of the subject areas. Candidates should focus their attention on those subject areas they will actually be taking. See page 3 of this test guide for more information.

INTRODUCTION

The New York State Department of Civil Service has developed this test guide to familiarize you with the written test for the State Research Series.

NOTE: You should refer to the Examination Announcement(s) for the particular examination(s) you will be taking, to see the specific subject areas to be included in your examination(s). **While this test guide provides a general description of all of the subject areas to be tested in the series, most people will only be taking a small number of examinations covering only some of the subject areas. It is recommended that you focus your preparation on the specific subject areas being tested on the particular examination(s) you will be taking.**

If you are taking more than one examination, and you compare the Examination Announcements, you may see that some subject areas are included in more than one of your examinations. In nearly all instances, there will be only one set of questions on the test for each subject area. So, for example, if you are taking three examinations, and all three include the subject areas “Basic statistical concepts” and “Preparing written material,” you will only have to answer these questions once in order to get credit for them on all three examinations.

NOTE: When you take your examination(s) you will be given **Candidate Directions**, which you must read very carefully so that you correctly identify the blocks of questions you need to answer for all of the examinations you are taking. Any block of questions which appears on more than one of your examinations only needs to be answered once. You will get credit for those questions on all of your examinations in which they appear.

All the questions on the written test for the State Research Series are multiple-choice questions. See the **SAMPLE QUESTIONS** in the subject area sections in this test guide for examples.

The written test for the State Research Series has an overall test time allowance of **8 hours**. That is, **you will have up to 8 hours to answer all of the questions on all of the examinations you will be taking.**

After the listing of all of the examinations in the State Research Series and the listing of all of the subject areas to be tested, the remainder of this test guide explains how you might be tested in each of the subject areas listed.

A **TEST TASK** is provided for each subject area. This is an explanation of how a question will be presented and how to correctly answer it. Read each explanation carefully. This test guide provides at least one **SAMPLE QUESTION** for each subject area. The sample questions will be similar to what will be presented on the actual test. This test guide provides the **SOLUTION** and correct answer to each sample presented. You should study these in order to understand how the correct or best answers were determined.

There is a brief note on **TEST SECURITY**, followed by a short section titled **CONCLUSION** which contains some helpful tips on how to approach a Civil Service test. These sections are at the very end of this test guide.

LIST OF EXAMINATIONS

The following examinations are included in the State Research Series:

<u>Exam #</u>	<u>Title</u>
25278	Associate Economist & (Various Parenthetics)
36279	Associate Economist & (Various Parenthetics)
25277	Associate Statistician
36281	Associate Statistician
25305	Associate Statistician (Engineering Research)
25279	Econometrician 2
36280	Econometrician 2
36295	Principal Biostatistician
36293	Principal Econometrician
36294	Principal Economist & (Various Parenthetics)
36296	Principal Statistician
25289	Program Research Specialist 2 (Various Parenthetics)
25290	Program Research Specialist 3 (Various Parenthetics)
36305	Program Research Specialist 3 (Various Parenthetics)
25291	Program Research Specialist 4 (Various Parenthetics)
36306	Program Research Specialist 4 (Various Parenthetics)
00186	Program Research Specialist Trainee 1
25298	Program Research Specialist Trainee 1
25275	Senior Biostatistician
36277	Senior Biostatistician
25276	Senior Statistician
36278	Senior Statistician
25304	Senior Statistician (Engineering Research)
00185	Statistician Trainee/Statistician/Biostatistician Trainee/Biostatistician
25280	Statistician Trainee/Statistician/Biostatistician Trainee/Biostatistician

LIST OF SUBJECT AREAS

The following subject areas are included in the State Research Series:

1. **Administrative supervision:** These questions test for knowledge of the principles and practices involved in directing the activities of a large subordinate staff, including subordinate supervisors. Questions relate to the personal interactions between an upper level supervisor and his/her subordinate supervisors in the accomplishment of objectives. These questions cover such areas as assigning work to and coordinating the activities of several units, establishing and guiding staff development programs, evaluating the performance of subordinate supervisors, and maintaining relationships with other organizational sections.
2. **Administrative techniques and practices:** These questions test for a knowledge of management techniques and practices used in directing or assisting in directing a program component or an organizational segment. Questions cover such areas as interpreting policies, making decisions based on the context of the position in the organization, coordinating programs or projects, communicating with employees or the public, planning employee training, and researching and evaluating areas of concern.
3. **Basic statistical concepts:** These questions test for knowledge of the analytical methods used to reduce and describe large sets of numerical data. The questions cover such areas as the organization and presentation of data, statistical terminology, central tendency, variability, the normal curve, and correlation. You will not be required to do any substantial manipulation of data.
4. **Descriptive and inferential statistics:** These questions test for knowledge of statistical methods and techniques and their application. The questions will cover such areas as central tendency and variability, the normal distribution, hypothesis testing, statistical significance testing, probability, correlation and regression, parametric and nonparametric statistics, and analysis of variance. The questions are primarily conceptual, but you may be required to do some manipulation of data.
5. **Econometric principles and theories:** These questions test for a knowledge of contemporary econometrics. The questions will cover such areas as seasonal, time series, and cross-sectional data; autocorrelation, heteroscedasticity, multicollinearity, and serial correlation; specification of econometric models; lagged variables; logarithmic and other transformations of variables; and regression.
6. **Economic principles and theories:** questions will cover such areas as price theory and related topics in microeconomics, macroeconomics, employment and labor economics, regional economics, and regulatory economics.
7. **Ensuring effective inter/intra agency communications:** These questions will test candidates' understanding of techniques for interacting effectively with individuals and agencies, to educate and inform them about topics of concern, to clarify agency programs or policies, to negotiate conflicts or resolve complaints, and to represent one's agency or program in a manner in keeping with good public relations practices. Questions may also cover interacting with the staff of one's own agency and/or that of other agencies in cooperative efforts of public outreach or service.
8. **Preparing reports and official documents:** These questions test for the ability to prepare reports and other official documents for use within and among governmental agencies, in legal or regulatory settings, or for dissemination to the public. Some questions test for a knowledge of correct grammar, usage, punctuation, and sentence structure. Others test for the ability to use the proper tone and to express information clearly and accurately.

LIST OF SUBJECT AREAS (Continued)

9. **Preparing written material:** These questions test for the ability to present information clearly and accurately, and to organize paragraphs logically and comprehensibly. For some questions, you will be given information in two or three sentences followed by four restatements of the information. You must then choose the best version. For other questions, you will be given paragraphs with their sentences out of order. You must then choose, from four suggestions, the best order for the sentences.
10. **Principles of biostatistics:** These questions test for a knowledge of the fundamental principles of biostatistics. The questions will cover such areas as epidemiology, demography, life tables and vital statistics.
11. **Research and experimental design:** These questions test for knowledge of the concepts and techniques involved in the collection and interpretation of data, and the design and implementation of research studies. The questions cover such areas as sampling theory and methods, survey methods, and research and experimental design concepts. You will not be required to do any substantial manipulation of data.
12. **Research methods and techniques:** These questions test for knowledge of the conceptual foundations for the collection and interpretation of data. The questions cover such areas as survey methods and techniques, sampling theory and techniques, and drawing conclusions from research results. You will not be required to do any substantial manipulation of data.
13. **Supervision:** These questions test for knowledge of the principles and practices employed in planning, organizing, and controlling the activities of a work unit toward predetermined objectives. The concepts covered, usually in a situational question format, include such topics as assigning and reviewing work; evaluating performance; maintaining work standards; motivating and developing subordinates; implementing procedural change; increasing efficiency; and dealing with problems of absenteeism, morale, and discipline.
14. **Understanding and interpreting tabular material:** These questions test your ability to understand, analyze, and use the internal logic of data presented in tabular form. You may be asked to perform tasks such as completing tables, drawing conclusions from them, analyzing data trends or interrelationships, and revising or combining data sets. The concepts of rate, ratio, and proportion are tested. Mathematical operations are simple, and computational speed is not a major factor in the test.

SUBJECT AREA 1

ADMINISTRATIVE SUPERVISION: These questions test for knowledge of the principles and practices involved in directing the activities of a large subordinate staff, including subordinate supervisors. Questions relate to the personal interactions between an upper level supervisor and his/her subordinate supervisors in the accomplishment of objectives. These questions cover such areas as assigning work to and coordinating the activities of several units, establishing and guiding staff development programs, evaluating the performance of subordinate supervisors, and maintaining relationships with other organizational sections.

TEST TASK: You will be presented with situations in which you must apply knowledge of the principles and practices of administrative supervision to answer the questions correctly. You will be placed in the role of a supervisor of a section, which is made up of several units. Each unit has a supervisor and several employees. All unit supervisors report directly to you.

SAMPLE QUESTION:

You have delegated a work project to two unit supervisors and have asked them to collaborate on it. Later, you observe two employees strongly arguing about which one of them is responsible for a certain activity within the work project. The arguing employees work for different units. Which one of the following actions is most appropriate for you to take in this situation?

- A. Intercede in the employees' argument and settle it.
- B. Meet with the unit supervisors of the two employees and inform them of the situation you observed.
- C. Inform one unit supervisor of the situation and ask this supervisor to take care of it.
- D. Set up a meeting that includes both unit supervisors and both employees to resolve the situation.

SOLUTION:

Choice A is not correct. In your position, you supervise properly by giving direction through your unit supervisors. By taking this choice, you are not allowing your unit supervisors to handle a problem involving their staff members. Also, it is not reasonable that you would be able to settle the employees' dispute. Earlier, you delegated the work project to the two unit supervisors, who would be responsible for assigning activities related to the project. The two unit supervisors must deal with the problem.

Choice B is the correct answer to this question. The two unit supervisors are collaborating on the work project and therefore giving the assignments. You should meet with them and tell them about the employees' argument. The unit supervisors should be informed about the point of contention and the fact that the two employees had a heated argument. The unit supervisors must then work out a way to handle the situation.

Choice C is not correct. Speaking to only one supervisor about the situation means that the second supervisor may be uninformed, or only partly informed, about the situation. You cannot be assured that the first supervisor will include the second supervisor in finding a way to settle the issue. If the first unit supervisor chooses to handle the situation on his own and speak to both employees, this supervisor would be giving direction to one employee from another unit. This is not good supervisory practice. Also, in taking Choice C, you are favoring one supervisor and slighting the other.

Choice D is not correct. The unit supervisors need to come up with a way of handling the situation that you observed. To do this, they must be informed without the employees present. Also, by including the employees in the meeting, you may get a replay of their earlier argument, which is not helpful.

The correct answer to this sample question is B.

SUBJECT AREA 2

ADMINISTRATIVE TECHNIQUES & PRACTICES: These questions test for a knowledge of management techniques and practices used in directing or assisting in directing a program component or an organizational segment. Questions cover such areas as interpreting policies, making decisions based on the context of the position in the organization, coordinating programs or projects, communicating with employees or the public, planning employee training, and researching and evaluating areas of concern.

TEST TASK: You will be presented with situations in which you must apply knowledge of administrative principles and practices in order to answer the questions correctly.

SAMPLE QUESTION:

A training program in your agency has received a number of negative evaluations from the participants. You have been asked to determine whether changes should be made to the training program in response to these evaluations. Which one of the following actions should you take FIRST in making this determination?

- A. Review the training methods.
- B. Review the content of the training materials.
- C. Review the goals of the training program.
- D. Review the evaluations with the training instructor.

SOLUTION: This question asks for the action that you should take FIRST in determining whether changes should be made to the training program.

Choice A is not correct. Although reviewing the training methods may result in changes to the program, you cannot evaluate the methods unless you have a context against which these materials can be evaluated. You must first become familiar with the training goals before you can evaluate the training methods.

Choice B is not correct. Although reviewing the content of the training materials may result in changes to the program, you must first know what the goals of the training program are before you can evaluate the appropriateness of the training content.

Choice C is the correct answer to this question. The most important consideration in determining whether changes should be made to the training program is determining whether the program met its training goals. You must first become familiar with those goals before you can make this determination.

Choice D is not correct. Although you may eventually review the evaluations with the training instructor, you must first become familiar with the goals of the training to provide a context against which you can discuss the content of the participant evaluations.

The correct answer to this sample question is C.

SUBJECT AREA 3

BASIC STATISTICAL CONCEPTS: These questions test for knowledge of the analytical methods used to reduce and describe large sets of numerical data. The questions cover such areas as the organization and presentation of data, statistical terminology, central tendency, variability, the normal curve, and correlation. You will not be required to do any substantial manipulation of data.

TEST TASK: You will be presented with questions involving basic statistical concepts in such areas as those mentioned above. You may be asked to define a statistical term, to calculate a value, to apply a concept to a specific situation, to choose the best statistical approach to a problem, or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of basic statistical concepts to select the best choice.

SAMPLE QUESTION:

What is the median of the following data?

8, 5, 3, 3, 14, 3

- A. 3
- B. 4
- C. 6
- D. 14

SOLUTION: To answer this question correctly you must know that the median is a measure of central tendency found by arranging the data in numerical order, and then finding the value in the “middle”, so that there are the same number of values greater than the median as there are less than the median. When there are an even number of values, you must select the two middle ones, add them together, and divide by two.

In this sample question, the data are not arranged in numerical order; your first step in solving the problem is to rearrange the values. The proper arrangement is: 3, 3, 3, 5, 8, 14. Since there are six values, an even number, you must find the two middle values; these are 3 and 5. Add these together and divide by two; $3 + 5 = 8$; $8/2 = 4$, which is **choice B**. There are three values less than 4 and three values greater than 4 in this data set.

Choice A is not correct. If one assumes that the order in which the data was first presented is the right starting point for finding the median, one would find the two values in the center of the data (3, 3), add them together and divide by two; $(3 + 3)/2 = 3$. However, since the data as first presented is not in numerical order, this process leads to an incorrect value for the median.

Choice C is not correct. It can be found by adding all the values and dividing the sum by the number of values; $(8 + 5 + 3 + 3 + 14 + 3)/6 = 6$. This is the arithmetic mean of the data, but the question asks for the median.

Choice D is not correct. It is simply the largest value in the set of data.

The correct answer to this sample question is B.

SUBJECT AREA 4

DESCRIPTIVE AND INFERENCE STATISTICS: These questions test for knowledge of statistical methods and techniques and their application. The questions will cover such areas as central tendency and variability, the normal distribution, hypothesis testing, statistical significance testing, probability, correlation and regression, parametric and nonparametric statistics, and analysis of variance. The questions are primarily conceptual, but you may be required to do some manipulation of data.

TEST TASK: You will be presented with questions involving descriptive and inferential statistics in such areas as those mentioned above. You may be asked to define or describe a statistical concept, to calculate a value, to apply a concept to a specific situation, to choose the best approach to a statistical problem, to identify an appropriate equation, or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of descriptive and inferential statistics to select the best choice.

SAMPLE QUESTION:

A researcher is interested in determining whether there is any difference between the opinions of men and women on the issue of capital punishment in New York State. Let X be the percentage of men in New York State who favor capital punishment; let Y be the percentage of women in New York State who favor capital punishment. Which one of the following is the most appropriate expression of the null hypothesis that the researcher should use in this situation?

- A. $X = Y = 0$
- B. $X + Y = 0$
- C. $X - Y = 0$
- D. $X > Y$

SOLUTION: To answer this question correctly you must know that the null hypothesis in this type of situation is that there is no difference between populations. When a researcher is trying to determine whether there is any difference between populations, without specifying any direction for the difference, “no difference” is the standard null hypothesis. (If the researcher were trying to determine whether the percentage of men who favor capital punishment is higher than the percentage of women, then the null hypothesis would be different.)

Choice A is not correct. It specifies that there is no difference in the percentages between men and women, but states that both percentages are zero. There is nothing to indicate that the researcher is limiting her/his investigation in this way.

Choice B is not correct. If $X + Y = 0$, then $X = -Y$; if X is positive, then Y must be negative. This requires that if a positive percentage of men favor capital punishment, a negative percentage of women do. A negative percentage has no meaning in this context.

Choice C: $X - Y = 0$; add Y to both sides of the equation; the result is $X = Y$. The percentage favoring capital punishment is the same for men as for women; there is no difference. This is the null hypothesis, and therefore **Choice C** is correct.

Choice D is not correct. It specifies that the percentage for men is greater than for women, which is not the “no difference” hypothesis appropriate for this situation.

The correct answer to this sample question is C.

SUBJECT AREA 5

ECONOMETRIC PRINCIPLES AND THEORIES: These questions test for a knowledge of contemporary econometrics. The questions will cover such areas as seasonal, time series, and cross-sectional data; autocorrelation, heteroscedasticity, multicollinearity, and serial correlation; specification of econometric models; lagged variables; logarithmic and other transformations of variables; and regression.

TEST TASK: You will be presented with questions involving econometric principles and theories in such areas as those mentioned above. You may be asked to define or characterize a concept, to apply econometric principles and theories to specific situations, to identify common problems in econometric models and possible methods for remedying them, or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of econometric principles and theories to select the best choice.

SAMPLE QUESTION:

When autocorrelation among the residuals (error terms) is present in an ordinary least-squares (OLS) regression, the estimators will have which one of the following characteristics?

- A. They will be biased.
- B. They will be inconsistent.
- C. They will be inefficient.
- D. They will be minimum-variance estimators.

SOLUTION: To answer this question correctly you must know what the term, “autocorrelation” means and what effects autocorrelation has on the estimators in OLS regressions. Autocorrelation means that the error terms in an OLS regression are correlated. This violates one of the basic assumptions of the OLS regression model. One of the main effects of autocorrelation on the OLS estimators is that the variances of these estimators are no longer a minimum; that is, there is a loss of efficiency.

Choice A is not correct. The OLS regression estimators will remain unbiased despite autocorrelation among the error terms. That is, the expected values of the estimators will continue to equal their “true” values.

Choice B is not correct. The OLS regression estimators will remain consistent despite autocorrelation among the error terms. That is, the estimators continue to approach their “true” values as sample size increases.

Choice C: There is a loss of efficiency in the sense that the variances of the OLS estimators will be greater when there is autocorrelation than when there is no autocorrelation. Therefore **Choice C** is correct.

Choice D is not correct. As indicated above, OLS estimators cease to be minimum variance estimators when there is autocorrelation among the error terms.

The correct answer to this sample question is C.

SUBJECT AREA 6

ECONOMIC PRINCIPLES AND THEORIES: These questions will cover such areas as price theory and related topics in microeconomics, macroeconomics, employment and labor economics, regional economics, and regulatory economics.

TEST TASK: You will be presented with questions involving economic principles and theories in such areas as those mentioned above. You may be asked to define or characterize a concept, to apply economic principles and theories to specific situations, to evaluate alternative economic policies, to calculate a value, or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of economic principles and theories to select the best choice.

SAMPLE QUESTION:

Assume that a firm has the following cost function:

$$TC = 800 + 20Q, \text{ where } TC \text{ is Total Cost and } Q \text{ is the quantity produced by the firm.}$$

Given this cost function, which one of the following has a value equal to 40?

- A. The marginal cost when $Q = 2$
- B. The average variable cost when $Q = 20$
- C. The average fixed cost when $Q = 20$
- D. The average total cost when $Q = 20$

SOLUTION: To answer this question correctly, you must understand the concepts of total cost, marginal cost, average variable cost, average fixed cost, and average total cost. You must then read all of the choices carefully and apply your understanding of all of these concepts to this specific example.

Choice A is not correct. *Marginal cost is the additional total cost resulting from the production of one more unit. It can be calculated by taking the first derivative of the total cost function with respect to quantity; or dTC/dQ . Using $TC = 800 + 20Q$, the first derivative is 20, a constant.*

Choice B is not correct. *Variable cost is cost which changes as the quantity produced changes. In the given cost function it is equal to $20Q$. When $Q = 20$, variable cost is $20 \times 20 = 400$. Average variable cost (AVC) is variable cost divided by the quantity produced; when $Q = 20$, $AVC = (20 \times 20)/20 = 20$.*

Choice C: *Fixed cost is cost which does not change as the quantity produced changes. In the given cost function it is equal to 800. Average fixed cost (AFC) is fixed cost divided by the quantity produced; when $Q = 20$, $AFC = 800/20 = 40$. **Choice C** is correct.*

Choice D is not correct. *Average total cost (ATC) is total cost divided by quantity produced. For the given cost function when $Q = 20$, $ATC = (800 + 20 \times 20)/20 = 1200/20 = 60$.*

The correct answer to this sample question is C.

SUBJECT AREA 7

ENSURING EFFECTIVE INTER/INTRA AGENCY COMMUNICATIONS: These questions will test candidates' understanding of techniques for interacting effectively with individuals and agencies, to educate and inform them about topics of concern, to clarify agency programs or policies, to negotiate conflicts or resolve complaints, and to represent one's agency or program in a manner in keeping with good public relations practices. Questions may also cover interacting with the staff of one's own agency and/or that of other agencies in cooperative efforts of public outreach or service.

TEST TASK: You will be presented with situations in which you must apply knowledge of how best to interact with agency staff and the public.

SAMPLE QUESTION:

A staff member comes to your office, expressing anger about a decision you recently made. Which one of the following should be your **first** response to this staff member?

- A. Interrupt to say you cannot discuss the situation until the staff member calms down.
- B. Say you are sorry that your decision has negatively affected the staff member.
- C. Listen and express understanding that your decision upset the staff member.
- D. Explain the reasons for your decision to the staff member.

SOLUTION:

Choice A is not correct. It would be inappropriate to interrupt the staff member. In addition, saying that you cannot discuss the situation until the staff member calms down will likely aggravate the staff member further.

Choice B is not correct. Acknowledging that your decision has negatively affected the staff member weakens your position and your decision.

Choice C is the correct answer to this question. By listening and expressing understanding that your decision upset the staff member, you demonstrate that you have heard and understand the staff member's feelings and point of view.

Choice D is not correct. While an explanation of the reasons for your decision may be appropriate at a later time, at this moment, the staff member is angry and would not be receptive to such an explanation.

The correct answer to this sample question is C.

SUBJECT AREA 8

PREPARING REPORTS AND OFFICIAL DOCUMENTS: These questions test for the ability to prepare reports and other official documents for use within and among governmental agencies, in legal or regulatory settings, or for dissemination to the public. Some questions test for a knowledge of grammar, usage, punctuation, and sentence structure. Others test for the ability to use the proper tone and to present information clearly and accurately.

TEST TASK: You will be presented with questions that, as a group, require you to recognize correct or incorrect application of rules for written communication and to judge sentences and paragraphs for correct construction, content, and internal logic.

GRAMMAR SAMPLE QUESTION:

Which one of the following is grammatically incorrect?

- A. Every intern and trainee is aware of the security concerns.
- B. Neither the section head nor the supervisor has signed the evaluation form.
- C. More than half of the forms received last month were incomplete.
- D. The editorial changes, in addition to the new font, makes the manual more readable.

SOLUTION:

*In **Choice A**, the subject, “Every intern and trainee,” is singular and requires a singular verb. “Is” is singular.*

*In **Choice B**, the subject closer to the verb, “supervisor,” is singular and requires a singular verb. “Has” is singular.*

*In **Choice C**, the subject, “More than half of the forms,” is plural and requires a plural verb. “Were” is plural.*

*In **Choice D**, the subject, “The editorial changes,” is plural and requires a plural verb. “Makes” is singular; therefore, **Choice D** is incorrect.*

The answer to this sample question on subject-verb agreement is D.

SUBJECT AREA 8 (Continued)

USAGE SAMPLE QUESTION:

Which one of the following sentences contains an incorrectly used word or words?

- A. We can adapt the floor plan to better suit our needs.
- B. Something has been done to address the high incidents of error.
- C. Two staff members share the job, working alternate days of the week.
- D. This criticism does not detract from the positive results of the program.

SOLUTION:

In Choice A, “adapt” is used correctly in this sentence.

In Choice B, “incidents” is mistakenly used for “incidence,” which fits the context of this sentence.

In Choice C, “alternate” is used correctly in this sentence.

In Choice D, “detract” is used correctly in this sentence.

The answer to this sample question is B.

SUBJECT AREA 8 (Continued)

PUNCTUATION SAMPLE QUESTION:

Which one of the following sentences is punctuated incorrectly?

- A. The reimbursement unit, which will process your form is in the next office.
- B. Please let us know, Mr. Scott, if the terms are acceptable.
- C. Dora Porter, a telecommunications specialist, will be our liaison.
- D. It is a regularly scheduled audit, but some urgent issues will be addressed.

SOLUTION:

*In **Choice A**, the relative clause “which will process your form,” should be separated from the rest of the sentence by two commas. The second comma is missing, so this sentence is punctuated incorrectly.*

*In **Choice B**, we have an example of direct address. When a person (Mr. Scott) is addressed directly, the name should be separated from the rest of the sentence by commas, as it is in this sentence.*

*In **Choice C**, we have an example of apposition. When the same individual is described in more than one way (“Dora Porter” and “a telecommunications specialist”), the additional information is separated from the rest of the sentence by commas, as it is in this sentence.*

*In **Choice D**, we have a compound sentence in which the two independent clauses are joined by the conjunction “but.” The appropriate punctuation for this construction is the placement of a comma before the conjunction, as is the case in this sentence.*

The correct answer to this sample question is A.

SUBJECT AREA 8 (Continued)

EDITING SAMPLE QUESTION 1:

Which one of the suggestions below gives the best advice concerning what, if anything, should be done to improve the following passage?

The current intern, unlike the two previous interns, have found the procedures manual to be an invaluable tool.

- A. Change “the two previous” to “the previous two.”
- B. Change “have” to “has.”
- C. Change “procedures” to “procedure’s.”
- D. Make no changes.

SOLUTION:

Choice A suggests a change that would not be an improvement. If the word “interns” were missing, a writer would be more likely to say “the previous two.” As the sentence is currently constructed, it flows better to say, “...current intern...previous interns...”

Choice B suggests a change that would improve the passage. The subject of the sentence is “intern,” a singular noun that requires a singular verb. “Have” is plural; “has” is singular. The additional information set off by commas, “unlike the two previous interns,” is not part of the subject and has no bearing on the choice of the verb.

Choice C suggests a change that would not be an improvement. “Procedures” is plural; “procedure’s” is singular possessive. The sentence refers to a manual that contains procedures; no ownership (possession) should be indicated.

Choice D is not viable since a change in the verb was necessary.

The correct answer to this sample question is B.

SUBJECT AREA 8 (Continued)

EDITING SAMPLE QUESTION 2:

Which one of the choices below is the best editing of the following passage?

After reviewing the findings, the decision was made by Lee Santo and me to recommend that the investigation is continued by our unit until the end of the year.

- A. Lee Santo and me decided to recommend that our unit continue the investigation until the end of the year, after our review of the findings.
- B. After the findings had been reviewed by Lee Santo and me, we recommended that the investigation be continued by our unit until the end of the year.
- C. After reviewing the findings, Lee Santo and I decided to recommend that our unit continue the investigation until the end of the year.
- D. After Lee Santo and I reviewed the findings, the decision was made to recommend that our unit continues the investigation until the end of the year.

SOLUTION:

Choice A is not an acceptable edited version of the passage. It uses “me” as the subject of the sentence (incorrect case of the pronoun); it also contains an ambiguity regarding the timing of the review, making it sound as if it has not yet occurred.

Choice B is not an acceptable edited version of the passage. It use the weaker passive voice in the opening clause; in addition, the main clause says that the recommendation was made when, in fact, the original passage states only that the decision to recommend was made at that time.

Choice C is the best edited version. All of the pertinent information is included. All nouns, pronouns, and verbs are in appropriate form.

Choice D is not an acceptable edited version of the passage. It fails to indicate who made the decision; it also presents the verb as “continues” when the sentence construction requires “continue.”

The correct answer to this sample question is C.

SUBJECT AREA 9

PREPARING WRITTEN MATERIAL: These questions test for the ability to present information clearly and accurately, and to organize paragraphs logically and comprehensibly. For some questions, you will be given information in two or three sentences followed by four restatements of the information. You must then choose the best version. For other questions, you will be given paragraphs with their sentences out of order. You must then choose, from four suggestions, the best order for the sentences.

TEST TASK: There are two separate test tasks in this subject area.

- For the first, **Information Presentation**, you will be given information in two or three sentences, followed by four restatements of the information. You must then choose the best version. There will be ten Information Presentation questions on the written test.
- For the second, **Paragraph Organization**, you will be given paragraphs with their sentences out of order, and then be asked to choose, from among four suggestions, the best order for the sentences. There will be five Paragraph Organization questions on the written test.

INFORMATION PRESENTATION SAMPLE QUESTION:

Martin Wilson failed to take proper precautions. His failure to take proper precautions caused a personal injury accident.

Which one of the following best presents the information above?

- A. Martin Wilson failed to take proper precautions that caused a personal injury accident.
- B. Proper precautions, which Martin Wilson failed to take, caused a personal injury accident.
- C. Martin Wilson's failure to take proper precautions caused a personal injury accident.
- D. Martin Wilson, who failed to take proper precautions, was in a personal injury accident.

SOLUTION:

Choice A conveys the incorrect impression that proper precautions caused a personal injury accident.

Choice B conveys the incorrect impression that proper precautions caused a personal injury accident.

Choice C best presents the original information: Martin Wilson failed to take proper precautions and this failure caused a personal injury accident.

Choice D states that Martin Wilson was in a personal injury accident. The original information states that Martin Wilson caused a personal injury accident, but it does not state that Martin Wilson was in a personal injury accident.

The best answer to this sample question is C.

SUBJECT AREA 9 (Continued)

PARAGRAPH ORGANIZATION SAMPLE QUESTION:

The following question is based upon a group of sentences. The sentences are shown out of sequence, but when correctly arranged, they form a connected, well-organized paragraph. Read the sentences, and then answer the question about the best arrangement of these sentences.

1. Eventually, they piece all of this information together and make a choice.
2. Before actually deciding upon a human services job, people usually think about several possibilities.
3. They imagine themselves in different situations, and in so doing, they probably think about their interests, goals, and abilities.
4. Choosing among occupations in the field of human services is an important decision to make.

Which one of the following is the best arrangement of these sentences?

- A. 2-4-1-3
- B. 2-3-4-1
- C. 4-2-1-3
- D. 4-2-3-1

SOLUTION:

Choices A and C present the information in the paragraph out of logical sequence. In both **A** and **C**, sentence 1 comes before sentence 3. The key element in the organization of this paragraph is that sentence 3 contains the information to which sentence 1 refers; therefore, in logical sequence, sentence 3 should come before sentence 1.

Choice B also presents the information in the paragraph out of logical sequence. Choice **B** places sentence 4 in between sentence 1 and sentence 3, thereby interrupting the logical sequence of the information in the paragraph.

Choice D presents the information in the paragraph in the best logical sequence. Sentence 4 introduces the main idea of the paragraph: "choosing an occupation in the field of human services." Sentences 2-3-1 then follow up on this idea by describing, in order, the steps involved in making such a choice. Choice **D** is the best answer to this sample question.

The best answer to this sample question is D.

SUBJECT AREA 10

PRINCIPLES OF BIOSTATISTICS: These questions test for a knowledge of the fundamental principles of biostatistics. The questions will cover such areas as epidemiology, demography, life tables and vital statistics.

TEST TASK: You will be presented with questions involving principles of biostatistics in such areas as those mentioned above. You may be asked to define or characterize a concept; to calculate a value; to apply a concept to a specific situation; to evaluate a biostatistical method, including its advantages and disadvantages, or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of the principles of biostatistics to select the best choice.

SAMPLE QUESTION:

The following question is based on the information in the paragraph and in the chart below.

Six members of a family are observed for a five month period. Four members become ill with a disease at various times during this period. The length of time that each member is ill is shown in the chart below; an X means that the member was ill during the month shown.

Member	Month				
	January	February	March	April	May
1					
2		X	X	X	
3	X	X	X	X	
4					
5			X	X	
6			X	X	X

Which one of the following is closest to the **incidence rate** of the disease in May?

- A. 0%
- B. 17%
- C. 33%
- D. 67%

SOLUTION: To answer this question you must know the definition of “incidence rate of a disease,” and be able to apply it to this specific example. The incidence rate of a disease is the proportion of a given population which first becomes ill with the disease during a specified time period. In the sample question, the population is the six members of a family; the time period is the month of May.

Choice A: None of the family members first became ill during May. Therefore **Choice A** is correct.

Choice B is not correct. One member was ill in May ($1/6 = 16.67\%$; closest to 17%). However, that member first became ill in March, not May.

Choice C is not correct. Two members first became ill in March ($2/6 = 33.33\%$; closest to 33%). The incidence rate of the disease was closest to 33% in March, but the question asks for the incidence rate in May.

Choice D is not correct. In both March and April, four members were ill ($4/6 = 66.67\%$; closest to 67%), but again this was not the incidence rate, and not in May.

The correct answer to this sample question is A.

SUBJECT AREA 11

RESEARCH AND EXPERIMENTAL DESIGN: These questions test for knowledge of the concepts and techniques involved in the collection and interpretation of data, and the design and implementation of research studies. The questions cover such areas as sampling theory and methods, survey methods, and research and experimental design concepts. You will not be required to do any substantial manipulation of data.

TEST TASK: You will be presented with questions involving research and experimental design in such areas as those mentioned above. You may be asked to describe the characteristics, including the advantages and disadvantages of various research methods, techniques, and experimental designs; to evaluate the appropriateness of methods, techniques, and designs in a specific situation; to draw conclusions based on the results of a hypothetical research study; or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of research and experimental design to select the best choice.

SAMPLE QUESTION:

A researcher investigates the relationship among intelligence (as measured on an IQ test), education level, and anxiety (as measured on a personality rating). The study is conducted in accordance with accepted procedures. The results show statistically significant correlations between intelligence and education level ($r = +.35$) and between intelligence and anxiety ($r = -.49$).

Which one, if any, of the following conclusions is justified in light of the above information?

- A. High intelligence causes a person to be less anxious than low intelligence.
- B. Intelligence is more strongly correlated with education than with anxiety.
- C. There is a statistically significant relationship between education level and anxiety.
- D. None of the above is justified in light of the information given.

SOLUTION: To answer this question correctly you must know about the relationship between correlation and causation; about the meaning of different numerical values for a correlation coefficient; and about the implications of correlation among several variables.

Choice A is not correct. *The fact that there is a correlation between two variables does not necessarily mean that one causes the other. Higher intelligence might cause lower anxiety, or lower anxiety might cause higher intelligence (especially as measured on an IQ test). It is also possible that some other factor might be the cause of the inverse relationship between intelligence and anxiety.*

Choice B is not correct. *The absolute value of the correlation coefficient is the measure of the strength of the correlation, not the sign of the coefficient. An r of $+.35$ (intelligence and education level) is thus a weaker correlation than an r of $-.49$ (intelligence and anxiety).*

Choice C is not correct. *The fact that there are statistically significant correlations between intelligence and anxiety and between intelligence and education level does not mean that there will also be a statistically significant correlation between anxiety and education level. A researcher would have to directly test for the significance of any correlation between those two variables.*

Choice D: *since choices A, B, and C are all incorrect, choice D is correct.*

The correct answer to this sample question is D.

SUBJECT AREA 12

RESEARCH METHODS AND TECHNIQUES: These questions test for knowledge of the conceptual foundations for the collection and interpretation of data. The questions cover such areas as survey methods and techniques, sampling theory and techniques, and drawing conclusions from research results. You will not be required to do any substantial manipulation of data.

TEST TASK: You will be presented with questions involving research methods and techniques in such areas as those mentioned above. You may be asked to describe the characteristics, including the advantages and disadvantages of various research methods and techniques; to evaluate the appropriateness of a method or technique in a specific situation; to draw conclusions given the results of a hypothetical research study; or to perform other similar tasks. Each question will be followed by four choices. You must use your knowledge of research methods and techniques to select the best choice.

SAMPLE QUESTION:

A researcher wants to do a survey; the population of interest consists of all students attending a large college located near the researcher's office. Which one of the following sampling techniques is most likely to result in a random sample of this population?

- A. Selecting one dormitory out of the six in the college; assigning a number to every student living in the dormitory, and selecting 10% of those students using a table of random numbers.
- B. Selecting the first 30 students entering the student center every day for a week.
- C. Obtaining a list of all the phone numbers in all of the dormitories at the college and then selecting every tenth number from the list.
- D. Obtaining a list of the names of all the students attending the college; assigning a number to every student, and selecting 10% of the students using a table of random numbers.

SOLUTION: To answer this question correctly you must know that for a sample to be random, every member of the population must have an equal chance of being selected for the sample. You must also pay attention to the definition of the population in the question.

***Choice A** is not correct. If only one dormitory is selected, the students living in the other five have no chance of being part of the sample; neither do any students who live off campus (i.e., not in a dormitory). This violates the equal probability requirement. (Note- the method in this choice would result in a random sample of the students living in one dormitory, but that is not the population of interest.)*

***Choice B** is not correct. Not all students in the college are equally likely to go to the student center at all, and of those who do go, they are not equally likely to go early.*

***Choice C** is not correct. Again, students who do not live in a dormitory would not have a chance to be selected for the sample.*

***Choice D:** This process does provide an equal chance for every student to be selected for the sample. Therefore, **choice D** is correct.*

The correct answer to this sample question is D.

SUBJECT AREA 13

SUPERVISION: These questions test for knowledge of the principles and practices employed in planning, organizing, and controlling the activities of a work unit toward predetermined objectives. The concepts covered, usually in a situational question format, include such topics as assigning and reviewing work; evaluating performance; maintaining work standards; motivating and developing subordinates; Implementing procedural change; increasing efficiency; and dealing with problems of absenteeism, morale, and discipline. There will be 15 questions in this subject area on the written test.

TEST TASK: You will be presented with situations in which you must apply knowledge of supervisory principles and practices in order to answer the question correctly.

SAMPLE QUESTION:

Assume the unit you supervise is given a new work assignment and that you are unsure about the proper procedure to use in performing this assignment. Which one of the following actions should you take FIRST in this situation?

- A. Obtain input from your staff.
- B. Consult other unit supervisors who have had similar assignments.
- C. Use an appropriate procedure from a similar assignment that you are familiar with.
- D. Discuss the matter with your supervisor.

SOLUTION: This question asks for the action that you should take FIRST in this situation.

Choice A is not correct. Since this assignment is new for your unit, your staff would not be expected to be more knowledgeable than you about the proper procedure.

Choice B is not correct. Although discussing this matter with other supervisors may increase your knowledge of the new assignment, similar assignments performed in other units may differ in some important way from your new assignment. Other units may also function differently from your unit, so the procedures used to perform similar assignments may differ accordingly.

Choice C is not correct. Since this assignment is new for your unit, you would have no way of knowing whether the procedure from a similar assignment is appropriate to use. You would need someone with the appropriate knowledge, usually your supervisor, to determine if the procedure from a similar assignment could be used before you actually employed this procedure in the performance of your new assignment.

Choice D is the correct answer to this question. Your supervisor is more likely to be informed about what procedure may be appropriate for work that he or she assigns to you than would other unit supervisors or your staff. Even if your supervisor does not know what procedure is appropriate, a decision regarding which procedure to use should be made with his or her participation, since he or she has the ultimate responsibility for your unit's work.

The correct answer to this sample question is D.

SUBJECT AREA 14

UNDERSTANDING AND INTERPRETING TABULAR MATERIAL: These questions test your ability to understand, analyze, and use the internal logic of data presented in tabular form. You may be asked to perform tasks such as completing tables, drawing conclusions from them, analyzing data trends or interrelationships, and revising or combining data sets. The concepts of rate, ratio, and proportion are tested. Mathematical operations are simple, and computational speed is not a major factor in the test.

TEST TASK: The questions in this subject area are contained in two or more sets. Each set consists of data presented in one or more tables, followed by a number of questions. You must use the appropriate data from the tables, in combination with the information given in each question, in order to answer the questions correctly.

SAMPLE TABLE:

DIRECTIONS: Base your answers to the following two questions on the information in the table below.

**Population of a City in 2007 by Age and Gender
(in Thousands)**

Age	Female	Male	Total
Under 25	70	72	142
25-34	?	27	?
35-44	?	28	53
45-54	27	28	55
55-64	30	?	57
65 and over	85	75	160
Total	261	257	518

NOTE: Spaces with question marks can be filled in using information given in the table and in the questions.

SUBJECT AREA 14 (Continued)

SAMPLE QUESTION 1:

How many people in the city in 2007 were between 25 and 34 years old?

- A. 51
- B. 27,000
- C. 51,000
- D. cannot be determined from the information provided

SOLUTION: To answer this question correctly, you must first note that the numbers in the table represent thousands of people (see the table heading). You are asked to find the total number of people aged 25-34. Since this information is missing from the table, it is necessary to calculate it by using other information which is in the table. You must add the number of people in all of the age groups other than 25-34, and then subtract this sum from the total population of the city. This will then give the number of people aged 25-34.

142,000	under 25		
+ 53,000	35-44	518000	total population (all ages)
+ 55,000	45-54	<u>- 467,000</u>	total population (all ages except 25-34)
+ 57,000	55-64	51,000	population aged 25-34
<u>+160,000</u>	65 and over		
467,000			

There are 51,000 people in the city between the ages of 25 and 34. (choice C).

The correct answer to sample question 1 is C.

SAMPLE QUESTION 2:

Most nearly what percent of the total population of the city was female aged 35 to 54?

- A. 5%
- B. 10%
- C. 14%
- D. 20%

SOLUTION: To answer this question correctly you must find the number of females aged 35 to 54. This requires you to add the number of females aged 35-44 to the number aged 45-54. You must first find the number of females who are aged 35 to 44. This information is missing from the table, but you can calculate it by subtracting the number of males who are aged 35 to 44 from the total number of people in that age group. ($53,000 - 28,000 = 25,000$; there are 25,000 females aged 35-44). You then need to add the number of females aged 35-44 to the number of females aged 45 to 54; ($25,000 + 27,000 = 52,000$; there are 52,000 females between the ages of 35 and 54). You must then divide this number by the total population of the city, and convert the answer to a percent. ($52,000/518,000 = .100386$; **this is nearest to 10%, which is choice B**).

The correct answer to sample question 2 is B.

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CONCLUSION

Your attitude and approach to the test will influence how well you perform. A positive attitude will help you do your best.

Before the test...

- Study and review this guide to become familiar with what the test will cover.
- Study and review the subject areas that will be covered on the test.
- Study and review the New York State Department of Civil Service publication, "How to Take a Written Test." It is available on the same page as this and other test guides through www.cs.state.ny.us, Job Seekers, Employment Opportunities with NYS Government, State Examinations, Test Guides and Resource Books. The direct link is: <http://www.cs.state.ny.us/pio/publications/howtotakeawrittentest.pdf>. It includes a considerable amount of information on Civil Service tests, including a section titled, General Test-Taking Guidelines." This includes advice such as: **Read each test question carefully and completely. Read all of the choices before selecting your answer.** You may also request a copy of this material by e-mail at examinfo@cs.state.ny.us or by calling the Exams Information Desk at 518-457-6216 inside the Albany area, or outside of the Albany area toll free at 1-877-697-5627.

On the day of the test...

- Arrive at the test site on time.
- Bring your Admission Notice, two No. 2 pencils, a photo ID containing your signature, a quiet lunch or snack, and any other **allowed** materials.
- Do **NOT** bring this test guide to the test site.

At the test site...

- Do **NOT** bring cell phones, beepers, headphones, or any electronic or other communication devices to the test site.
- The use of such devices anywhere on the grounds of the test site (this includes the test room, hallways, restrooms, building, grounds, and parking lots) could result in your disqualification.

During the test...

- Read and follow all directions on your Admission Notice, test booklets, answer sheets, and Candidate Directions.
- Follow the Monitor's instructions.
- Keep track of time.

After the test...

- Do **NOT** remove any test materials from the test room.
- Do **NOT** paraphrase, reconstruct, or reproduce the test material in any way.
- Do **NOT** discuss the test material with others.

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