



**itcc**

IT CERTIFICATION COUNCIL

**GUIDANCE ON  
INCLUSIVE ITEM  
WRITING FOR IT  
CERTIFICATION**

**AN IT CERTIFICATION RESOURCE**

@2023 IT Certification Council

# Contents

1. Introduction .....	3
1.1 This guidance .....	3
1.2 Relevance to content domain .....	3
2. General Considerations .....	4
2.1 Use simple language .....	4
2.2 Ensure content and context is neutral.....	4
2.3 Ensure questions apply for all users .....	5
2.4 Question layout.....	5
2.5 Following accessibility guidelines.....	6
3. Specific Guidance for Individual Differences .....	7
3.1 Guidance for those with visual impairments.....	7
3.2 Guidance for use of color.....	7
3.3 Guidance for those with auditory impairments .....	8
3.4 Guidance for those with cognition/neurodiversity requirements .....	8
3.5 Guidance for non-local speakers .....	8
4. Further Resources .....	9

# Guidance on Inclusive Item Writing for IT Certification

November 2023

Copyright © 2023 the IT Certification Council (ITCC). We welcome copy and use by others providing ITCC is credited.

## 1. Introduction

### 1.1 This Guidance

This guidance has been produced by the DEI Workgroup of the ITCC to provide guidance on writing items (questions) for IT and related technical fields certification exams, assessments, and similar validation activities. The goal is to help item writers take diversity and inclusivity into consideration as they create exam and assessment content.

The guidance is aimed at those writing more traditional item types such as multiple choice, or short answer. It doesn't consider more interactive item types, such as simulations, lab tasks, or other performance based activities, though many of the principles here apply to such items. This document is primarily focused at IT Certification but may be of value to those in other fields.

### 1.2 Relevance to Content Domain

A key concept of item writing is that an exam measures relevant skills, abilities or traits that the exam is designed to measure; this is what makes the exam valid. For example, an IT certification exam might assess specific IT skills (e.g., being able to configure and administer a software system") or the skills needed to successfully perform IT jobs (e.g., IT administrator).

An exam usually consists of topics or objectives that are weighted based on their importance and frequency to create a blueprint. The blueprint is derived from the exam purpose or an analysis of the objectives needed to meet the skill or focus area of the test. A blueprint defines the distribution of items across the content domain (i.e., how many items are needed for each objective to cover the content domain appropriately).

For the test or exam to be valid, it's critical not only that the number of items created for each objective align with that blueprint but that those items only measure constructs related to the content domain. For example, if understanding complex language is not part of the skill set being measured, then the items need to be written in simpler language. If they are not, you will be measuring something that is irrelevant to the domain that you're trying to assess.

Inclusive item writing is largely about ensuring that you are not inadvertently assessing something that you don't mean to assess because of the way the question is written or structured. Suppose an item contains a diagram which includes information in red and green. Someone who has color blindness may struggle to understand and answer the question because it measures the ability to distinguish red and green as well as the skill it was intended to assess. For those who are not color blind, the item may perform satisfactorily, but for those who are, it will not.

This document provides general principles on item writing and then provides considerations for different elements of individual differences, such as color blindness. A well designed, inclusive item will perform effectively for those who experience the individual difference and for those who don't.

## 2. General Considerations

### 2.1 Use Simple Language

One of the key steps in inclusive item writing is to ensure that the wording and structure of the questions is accessible to as many people as possible. This applies to the question itself and the answer choices.

Simple, short sentences, bullets, spacing, etc. make items easier to parse by neurodiverse candidates and by those whose primary language is not the same as the language of the test. Use of simple language also supports better translations of content for test takers whose preferred or local language differs from the language in which the exam was primarily constructed.

It's sensible for each test program to establish a style guide that encourages accessible wording and inclusive language. For example:

- Use precise language.
- Avoid redundancy.
- Use an active voice.
- Use straightforward language – for example, “with” rather than “in conjunction with” or “use” rather than “utilize”
- Use clear punctuation.
- Use commas correctly.
- Use semicolons sparingly. It's usually better to create two sentences.
- Use short, simple sentences that present information succinctly.
- Have only one clause or idea per sentence.
- Use multiple short sentences rather than long, complex sentences.
- Make a 'which' clause its own sentence or eliminate it.
- Use standard English word order: Subject + Verb + Object
- Use simple verb tenses (simple present, simple past, and simple future).
- Avoid parenthetical clauses.
- Use abbreviations or acronyms sparingly (and define them when using).
- Use words and phrases consistently.
- If there are two similar or synonymous terms, use them consistently and not interchangeably
- Use the same language that appears in supporting documentation that the IT certification relates to.
- Avoid colloquialisms, idioms, slang, jargon and metaphors
- Be cautious when using negative words such as “not” or “don't” as they may confuse some candidates. Never use more than one negative in a sentence.
- Use bulleted lists when possible. For long instructions, consider restructuring the content into a bulleted list.

### 2.2 Ensure Content and Context is Neutral

Another key step is to use neutral content and context within questions. Including context that is unfamiliar or which uses stereotypes might make the question harder for some than others. The world of IT is genuinely global and questions should not make cultural or demographic assumptions about candidate knowledge or background. Additionally, some candidates will come from less privileged backgrounds and might not be familiar with some concepts which more privileged candidates (and item writers) might consider obvious.

For example:

- July is not summer in every country.
- Sunday is not the weekend in every country.
- Not every culture celebrates birthdays with cake.
- Many people have never seen snow.

Some things to consider:

- Items should be gender neutral.
- If you need to use names of people, use culturally neutral ones.
- Avoid assumptions that candidates are in the United States or that they will be familiar with US terms like “interstate highway” or “federal laws.”
- Avoid stereotypes, opinion based content, absurd scenarios, and humor.
- Do not include any context that could be controversial or provocative or presented in a way that some candidates could have an emotional response to the scenario.
- Be consistent in use of pronouns, either using the third person (e.g. “an administrator wants to do x. How should they accomplish this?”) or the second person (e.g. how would you accomplish ...).

## 2.3 Ensure Questions Apply for All Users

If you are writing questions about the use of software, it’s important to ensure that questions apply fairly to candidates who use the software in legitimate but different ways.

For example, if your product has a command line interface (CLI) and a graphical user interface (GUI) and either route can get a task done, it could be that some candidates have to use one way (e.g. because of accessibility needs). So a question that asks only about the CLI or GUI might not be fair. It’s often good practice, to the extent possible to test on the outcome, not on the process. Testing on the outcome also insulates the questions from changes in the user interface and is likely to make the question more future proof.

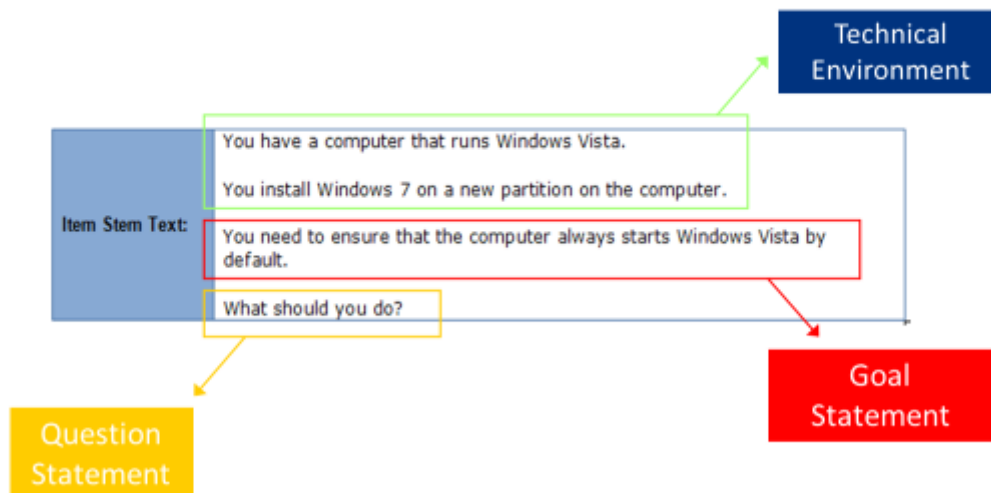
Additionally, if the IT certification relates to a wide range of devices, bear in mind that if some devices are expensive or used mostly in some geographic regions, some candidates may not be familiar with them.

## 2.4 Question Layout

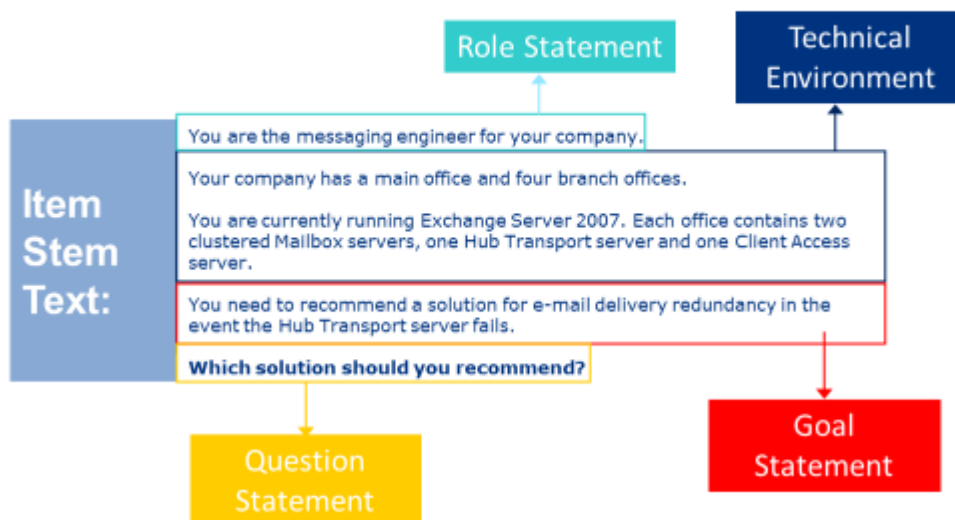
A consistent screen layout for questions is fair to all candidates but is particularly helpful to those with accessibility needs. Provide clear, visual delineations between elements of the problem (background information, question, instructions for answering the question). Minimize scrolling as much as possible. Allow font sizes to be adjustable or allow for zoom. Recent research suggests that informing candidates how many options to select, even if it’s just one (i.e., Select 1.) is particularly helpful to those with cognitive disabilities.

Here are a couple of examples of good practice in item stems.

# Sample Stem #1



# Sample Stem #2



## 2.5 Following Accessibility Guidelines

There are well respected international accessibility guidelines called the Web Content Accessibility Guidelines (WCAG). The latest version is WCAG 2.2 and is available at <https://www.w3.org/TR/WCAG22/>.

Screen design and layout may be under the control of whoever supplies or configures the certification delivery system. However, when designing complex questions or in other circumstances when on-screen layout is under the control of question authors, follow the WCAG guidelines.

In addition, avoid using justify-aligned text in questions as this can cause problems for dyslexic users. Avoid flickering or flashing in animations or other objects, and ensure that all questions can be answered with the keyboard as this is critical for some people with accessibility needs.

Be cautious about using drag and drop items. While they can be made accessible (i.e., ability to move the item to the target with keyboard commands only), the process to do so is usually complicated and reduces the usability of the item for people with disabilities.

## 3. Specific Guidance for Individual Differences

### 3.1 Guidance for Those with Visual Impairments

Numbers vary by region and age, but the US National Federation of the Blind suggests that in the US around 2.4% of those between 16 and 75 had a visual disability as of 2016.

All questions must work with screen readers. This means meeting the WCAG requirements as well as testing your exam experience with screen readers and listening to input from visually impaired people. Ensure that the screen reader works in conjunction with any other inclusivity aids (e.g., translated content.)

When it's necessary to include screenshots, videos, or other non-text visual material within questions, you need to find ways to make it fair for visually impaired people. Some approaches to consider:

- Rewrite the question to avoid using the visual material if possible.
- Remove these questions from the exam for those who are visually impaired (this assumes that interpreting/understanding the visualization is not a core skill being assessed).
- Include alternative text that accurately describes the visualization; ensure that it's descriptive enough without giving away the answer or providing an overwhelming amount of information.
- If you are using videos, they should include captions and/or a transcript alternative.
- If the visual material relates to a computer program that can be used by the visually impaired, ensure that the usual screen reading capability is present in the question.

### 3.2 Guidance for Use of Color

Over 4% worldwide have color blindness, meaning that they cannot distinguish between certain colors. The most common form of color blindness is the inability to distinguish between red and green, but other variants of color blindness exist.

IT certification questions should not require candidates to distinguish between colors or to infer information from color alone. Where it's necessary to present an image with different sections, use patterns, shading, text labels or other mechanisms to distinguish between sections of an image.

Consider:

- Following WCAG standards regarding color contrast.
- Using high-contrast color schemes designed for improved differentiation for users with color blindness. (see for example <https://www.perkins.org/resource/choosing-high-contrast-color-schemes-for-low-vision/>)
- Using multiple approaches to differentiate information when visualizing data in graphs and charts, such as using different shapes or patterns, and directly labeling items rather than relying solely on chart legends/keys. See <https://keen.io/blog/accessibility-in-data-vis/> for future information.

### 3.3 Guidance for Those with Auditory Impairments

A significant number of people have difficulty hearing. For example, in the US, approximately 2% of adults aged 45 to 54 have disabling hearing loss.

While most exams don't use audio, if they do, consider how to fairly treat candidates who have auditory impairments. For example, you could provide a text transcript or provide closed captioning.

### 3.4 Guidance for Those with Cognition/Neurodiversity Requirements

A 2020 study estimated about 15-20% of the population worldwide is neurodiverse. Given the size of this audience, this is a place where adjustments to how you write and structure questions can have significant impact. Consider the following guidance:

- Use a consistent writing style, instructions, and visual presentation across questions of the same type to aid in pattern recognition for neurodivergent individuals.
- Use simple language as in section 2.1 above, including easy to understand instructions, and language that avoids ambiguity and jargon.
- Consider using visuals to enhance understanding and reinforce content (while taking care to follow the guidance for individuals with vision impairments).
- Add extra white space between objects in graphs and charts as well as between lines of text, allowing users with spatial reasoning difficulties to process information more quickly.
- Clearly delineate between elements of the question (e.g., stem and choices). Clearly differentiate between headings and content by changing the size of the font.
- Minimize scrolling.
- Use the same language that appears in the supporting documentation.
- Present complicated information in lists.
- Specify the number of answers to select, even if it's just one.
- Emphasize key differences between similar answer choices.
- Have all necessary information simultaneously available to decrease the cognitive load. Avoid making the candidate move between multiple sources of information.

### 3.5 Guidance for Non-local Speakers

Many IT exams are delivered globally and will be answered by people whose primary language is not the same language of the exam. Within most countries, there is a significant minority of people who are non-native speakers. For example, in the US over 20% of people speak a language that is not English at home.

Using simple language and sentence structure is particularly important for such candidates. Consider replacing difficult words/phrases with easier synonyms and adding an explanation for any difficult terms that cannot easily be replaced with easier synonyms.

If appropriate, consider setting a formal reading proficiency threshold that aligns to the expectations of your target audience (e.g., a level of B1 on CEFR (Common European Framework of Reference for Languages)) and then evaluating the reading level of your items against that threshold. There are programs, such as Text Inspector, that will inspect text and advise its reading level. Be sure to exclude IT domain-specific terms that are relevant to the content domain from such analysis.

It can also be helpful to translate items, either translating the whole exam into certain languages or providing an "on the fly" translation option to allow non-local speakers to understand and answer questions better. Another consideration for translation applies to test takers who may require use of screen reader technology (those with visual impairments). In addition to translating content perceived on screen during an



exam, it is important to verify that the translated content is also available to users requiring screen reader technology.

## 4. Further Resources

The ITCC DEI workgroup hopes that this guidance is useful to those creating tests and exams and helps to create more inclusive programs.

Some useful further resources:

- The ITCC DE&I Maturity Model for Certification Programs at <https://itcertcouncil.org/mp-files/dei-maturity-model-for-certification-programs-2023.pdf/>
- Best Practices for Designing Accessible Performance Assessments from the California Performance Assessment Collaborative, particularly Appendix B on testing modifications at [https://learningpolicyinstitute.org/sites/default/files/CPAC\\_Best\\_Practices\\_Designing\\_Accessible\\_Performance\\_Assessments.pdf](https://learningpolicyinstitute.org/sites/default/files/CPAC_Best_Practices_Designing_Accessible_Performance_Assessments.pdf)
- UK exam regulator Ofqual guidance for designing and developing accessible assessments at <https://www.gov.uk/guidance/ofqual-handbook/section-d-general-requirements-for-regulated-qualifications> (scroll to bottom of guidance)
- Web Content Accessibility Guidelines (WCAG) at <https://www.w3.org/TR/WCAG21/>
- “Building Accessible Learning Products” a white paper by Learnosity that explains good practice in accessibility at <https://learnosity.com/building-accessible-learning-products/>
- Deque’s comprehensive checklist for accessibility: <https://dequeuniversity.com/checklists/web/>
- WebAIM’s checklist that breaks down WCAG criteria under the POUR concept: <https://webaim.org/standards/wcag/checklist>
- The W3C Easy Checks resource: <https://www.w3.org/WAI/test-evaluate/preliminary/>
- General Principles for Reducing Bias from the APA at <https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/general-principles>
- Item Writer Guidelines for Greater Accessibility from the National Center for Accessible Media at [http://ncamftp.wgbh.org/ncam-old-site/file\\_download/Item\\_Writer\\_Guidelines\\_for\\_Greater\\_Accessibility.pdf](http://ncamftp.wgbh.org/ncam-old-site/file_download/Item_Writer_Guidelines_for_Greater_Accessibility.pdf)
- Inclusive design from Microsoft at <https://inclusive.microsoft.design/>