Excel to QTI Converter

I. Overview/Introduction

The QTI Converter is a specialized application developed to streamline the process of creating and importing quizzes into the Canvas Learning Management System (LMS). The tool allows users to design assessments using a standard Excel spreadsheet and automatically converts them into a ZIP package that complies with Canvas's official QTI 1.2 format.

By supporting the QTI standard, the converter guarantees that all generated quiz packages are fully compatible and ready for direct import into the Canvas LMS. The tool accommodates the most widely used and essential question types, such as multiple-choice, multiple-answer, true/false, fill-in-the-blank, and short answer, ensuring alignment with Canvas's QTI 1.2 specifications. By focusing on these core question formats, the converter simplifies the process while covering most typical assessment needs, providing a hassle-free and efficient workflow without requiring manual formatting or technical adjustments.

Beyond its core conversion functionality, the QTI Converter also enhances the user experience by offering additional features. These include a manual exam generator and an integrated item bank, allowing users to select specific questions to assemble customized exams. Additionally, the tool can convert QTI zip files into printable PDF versions for traditional pen-and-paper examinations.

By ensuring that quizzes are seamlessly imported into Canvas without formatting errors or compatibility issues, the QTI Converter helps instructors and administrators save valuable time. Instead of dealing with tedious manual formatting, users can focus more on content development and student engagement.

II. Installation Guide

The application is designed to work without a server or online hosting. It operates directly in your browser using a standalone HTML file. It only requires the following:

- A modern web browser (e.g., Google Chrome, Mozilla Firefox, Microsoft Edge).
- A local copy of the QTI Converter application folder.

A. Step-by-Step Installation

1. **Download the Application Files**

   Ensure you have the complete QTI Converter folder containing the necessary files:
   - ExamHelperQTI.html
   - \files folder (for other required subdirectories)

2. **Locate the HTML File**

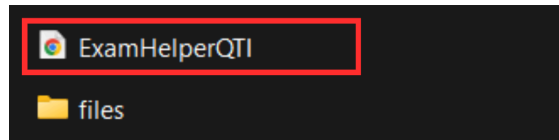   Inside the project folder, locate the ExamHelperQTI.html file. This is the entry point of the QTI Converter.

Figure 2.1 ExamHelperQTI file

3. **Open in Browser**

   Right-click on index.html and select "Open with" > your preferred web browser. Alternatively, you can double-click the file to automatically open it in your default browser.

4. **Loading Page**

   The image below displays the loading page when the QTI Converter application is launched. If the application fails to load as expected, users are prompted to press the "Launch Application" button to proceed to the Home Page.
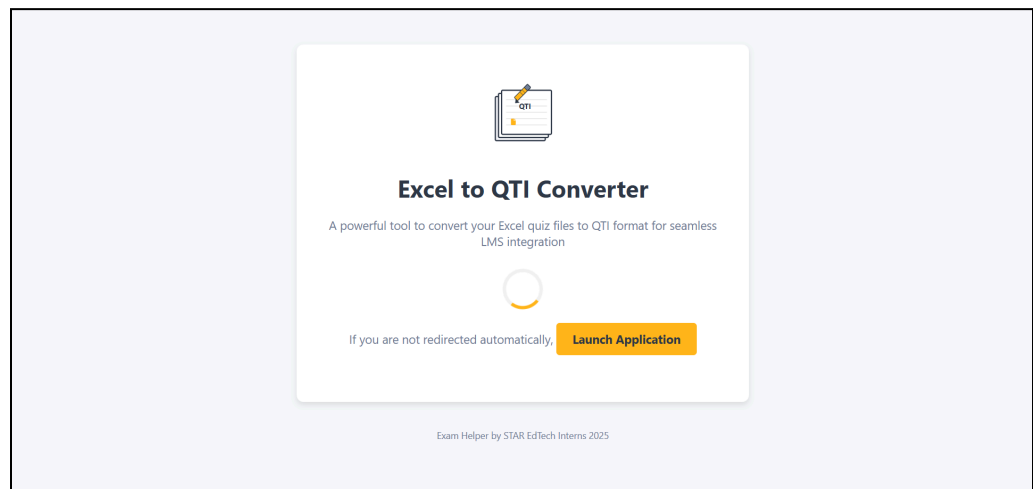
Figure 2.2 Loading Page

III.   User Guide on QTI Exam Converter

A. Home Page

The Home Page serves as the introductory screen of the QTI Converter application. Upon entering the application, users are presented with a simple, static interface that outlines the core functionalities of the tool. This page acts as an informational landing area, briefly describing the application's key features and capabilities.
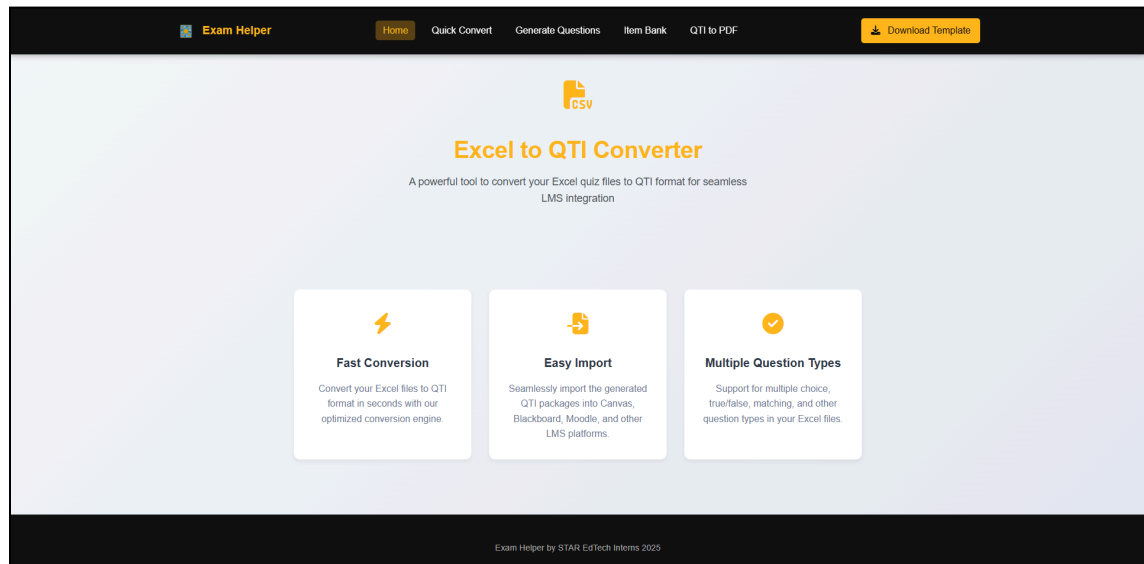

Figure 3.1 Home Page

The Home Page highlights the following functionalities:

- The ability to convert Excel-based quiz files into Canvas-compatible QTI 1.2 packages.
- Support for common question types, including multiple-choice, multiple-answer, true/false, fill-in-the-blank, and short answer.
- Additional features include manual exam generation, item bank integration, and PDF export for offline/pen-and-paper exams.

Below the Home Page highlights is the instructions manual, where this Google Document file is embedded. Other than that, no interactive actions are required on this page. Its primary purpose is to orient users to the application's scope before proceeding to the tools in the next sections.

B. Navigation Bars

The navigation bar is prominently located at the top of the QTI Converter application interface, providing quick access to the tool's core functionalities. Specifically, the application is composed of five (5) webpages:
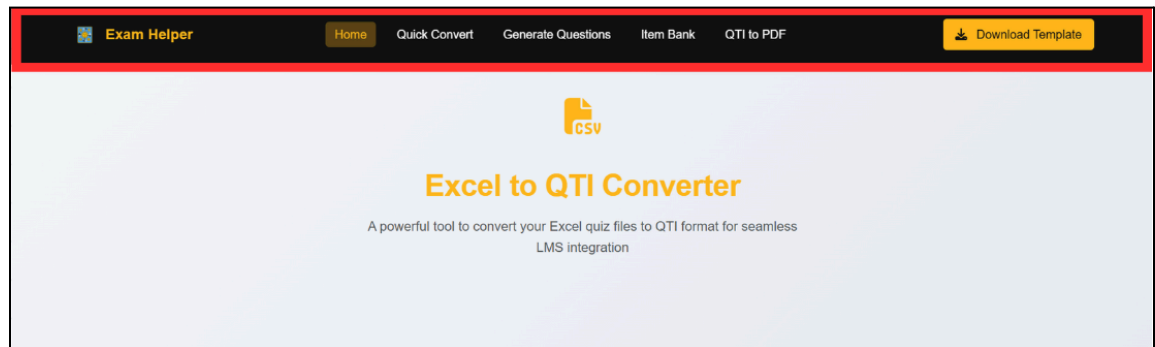

Figure 3.2 Navigation bar

- **Home**: Returns the user to the application's landing page, which outlines the app's general purpose.
- **Quick Convert**: Directs users to the section for converting Excel files to QTI-compliant packages.
- **Generate Questions**: This leads to a module where users can manually create exam questions.
- **Item Bank**: Allows users to selectively choose specific questions from pre-prepared items. This feature is recommended if users want more control over which questions to include in their exam.
- **QTI to PDF**: Opens the feature that allows converting QTI zip files into printable PDFs.

Positioned on the far right is a prominent yellow **"Download Template"** button, enabling users to quickly download the official Excel template required for proper quiz formatting. For more specific instructions on how to navigate this, refer to Section III.C of the documentation.

C. Download Template Button

A pop-up window appears when users click the "Download Template" button, as shown in Figure 3.3. This window presents two template options, each corresponding to different functionalities of the application:
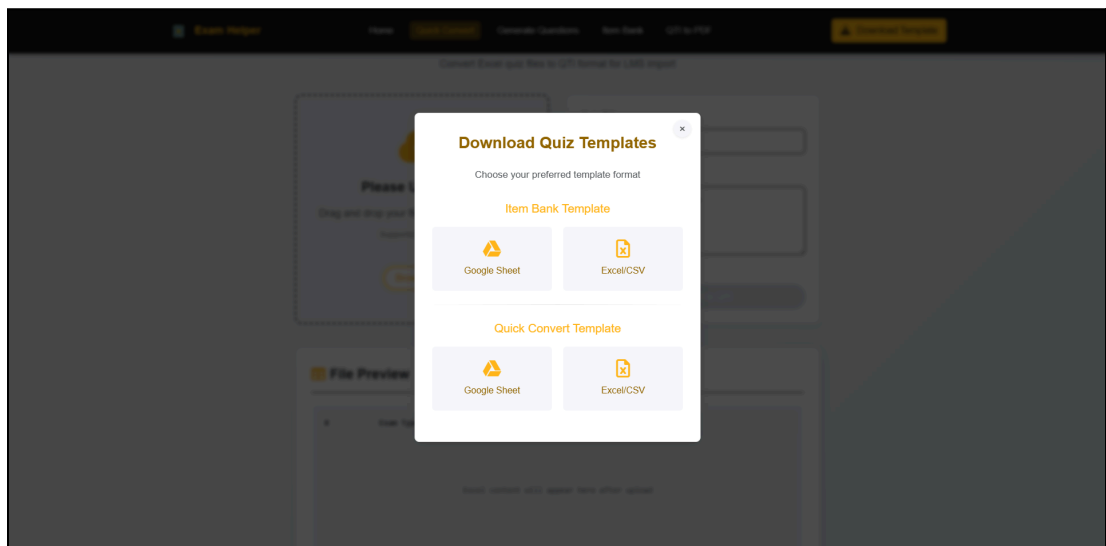

Figure 3.3 Download Template Interface

- The top option is the template designed for the **Item Bank** feature.
- The bottom option is the template intended for the **Quick Convert** feature.

For each option, users are provided with two ways to access the templates:

- Download directly to their computer as an Excel file.
- Open via Google Sheets, where a view-only file will be displayed.

If users choose the Google Sheets version, they will need to make a personal copy of the file to edit it, as the original file is locked from direct modification. This flexibility ensures users can choose the format that best suits their workflow.

D. The Excel Template

At the top of each sheet, users will find guidelines on how and when to manage their questions using the Item Bank and Quick Convert templates. These instructions outline the types of questions accepted by the QTI converter, which include:

- **Multiple Choice (MC):** For questions with a single correct answer.
- **Multiple Answer (MA):** For questions with more than one correct answer.
- **Fill in the Blank (FIB):** For questions where users must supply missing words or phrases.
- **Essay (ESS):** For open-ended or essay-type questions that require manual grading.
- **True or False (TF):** For statements that are either true or false.

Multiple Choice and **Multiple Answer** question types follow the same structure for inputting questions on the sheet. Users must input the exam question in the first column, followed by the answer choices in the subsequent columns. Each choice will have a corresponding tagging column where users specify whether the option is marked as "correct" or "incorrect." This setup allows the system to correctly identify the right answers during the conversion process.

For **True or False** questions, the structure is more straightforward. The first column is used for the question or statement, and the second column is dedicated to the correct answer. The correct answer must be written as either "TRUE" or "FALSE" in all capital letters to meet system requirements.

Essay-type questions only require the question to be input in the first column. Since these questions are open-ended, no additional columns for answers are necessary. The responses will be manually reviewed and graded inside the Learning Management System (LMS).

Finally, for **Fill in the Blank** questions, the first column is for the question itself. The following columns will be used to list all valid answers that the system will accept.

D.1. Item Bank Template

The Item Bank is recommended when users need to selectively choose which questions to include in an exam. This is ideal for creating a customized

assessment from a larger pool of items, enabling flexibility in reusing and managing questions across multiple exams.
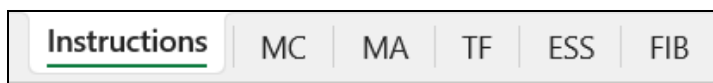
Figure 3.4 Item Bank Template Separate Sheets

In this method, each question type is separated by category and placed on its own sheet, as illustrated in Figure 3.4. This setup allows for easier organization and enables users to selectively import specific question types into their exams.
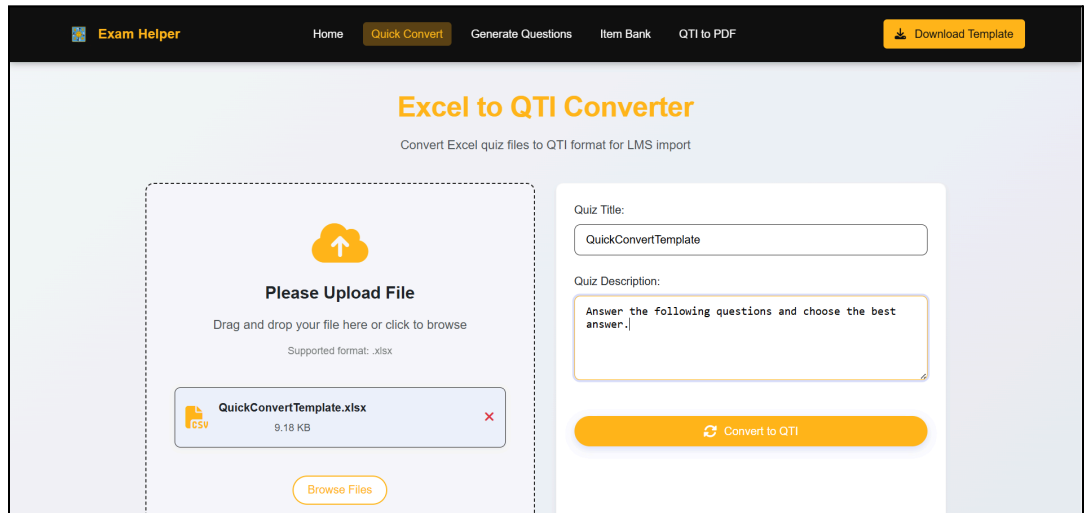
D.2. Quick Convert Template

The Quick Convert is used when users want to instantly convert all questions in the file into a QTI package without selecting individual questions. This method is best for uploading a complete exam set in one go and for faster, streamlined conversion without manual filtering.

This method places all question types on a single sheet, with the first column indicating the type. This is ideal for faster uploads when building a complete exam set without filtering.

E. Quick Convert
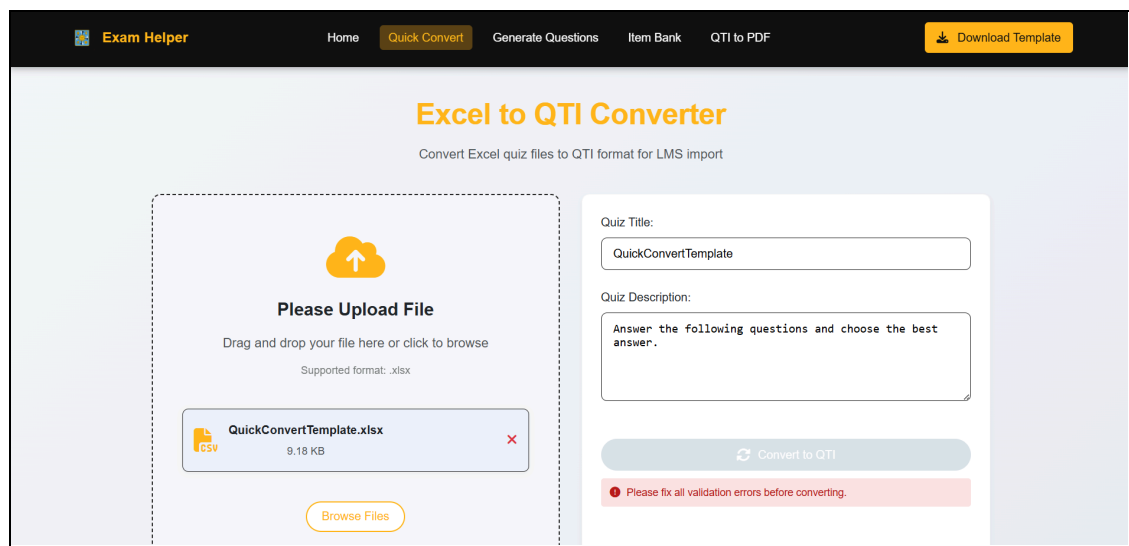
For the Quick Convert feature, users must import an Excel file using the provided template (refer to Part III Sections C and D for further guidance). Upon successful import, the file name will automatically populate the quiz title field, which users may still modify if necessary (refer to Figure 3.5).

Figure 3.5 Quick Convert Interface
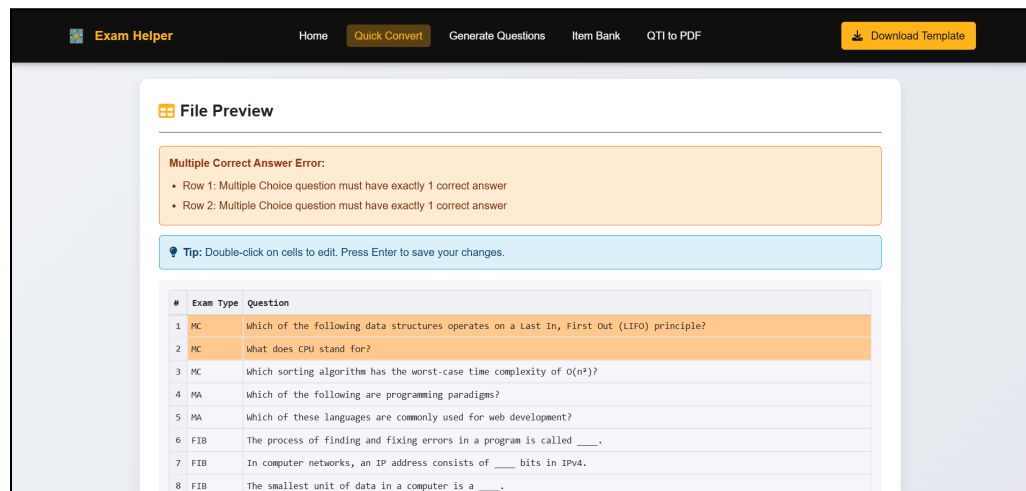
Below the quiz title, users must provide a quiz description, including specific instructions. The "Convert to QTI" button will only be activated once all required fields have been completed, allowing users to proceed with generating the QTI file from the imported Excel document. If any errors are detected within the document, the button will be disabled and will only be re-enabled once all issues are resolved. Figure 3.6 illustrates an example of this scenario.

Figure 3.6 Error Quick Convert

Beneath the Quick Convert page is the File Preview section, which displays the contents of the imported Excel file. This includes the exam type, question text, answer choices, and correct answers. In the example shown in Figure 3.7, the system has detected errors in Rows 1 and 2. This validation process ensures that all questions comply with the proper formatting and rules specific to each question type, preventing conflicts during conversion.

Figure 3.7 File Preview Error Validation

In this scenario, Row 1 triggered an error because the Multiple Choice type requires only one correct answer, but two have been provided. Meanwhile, Row 2 raised an error because no correct answer had been assigned.

1	Queue	✎	correct	Stack		Correct	Linked List		Incorrect	Heap
2	Central Process Unit		Incorrect	Central Processing Unit		incorrect	Core Processing Utility		Incorrect	Computer Processing U
3	Merge Sort		Incorrect	Quick Sort		Incorrect	Bubble Sort		Correct	Heap Sort
4	Object-Oriented Programming		Correct	Functional Programming		Correct	Binary Programming		Incorrect	Procedural Programmin
5	Python		Correct	JavaScript		Correct	HTML		Correct	C
6	debugging									
7	32									
8	bit									
9	FALSE									
10	FALSE									
11										
12										
13										

Figure 3.8 File Preview Editable Table View

In such cases, users can directly edit the table by double-clicking on the affected cells within the File Preview section. Once all detected errors have been resolved, the "Convert to QTI" button will be re-enabled. Additionally, users have the option to download the updated version of the file by clicking the "Download Edited Excel" button located at the bottom of the page, directly beneath the File Preview section.
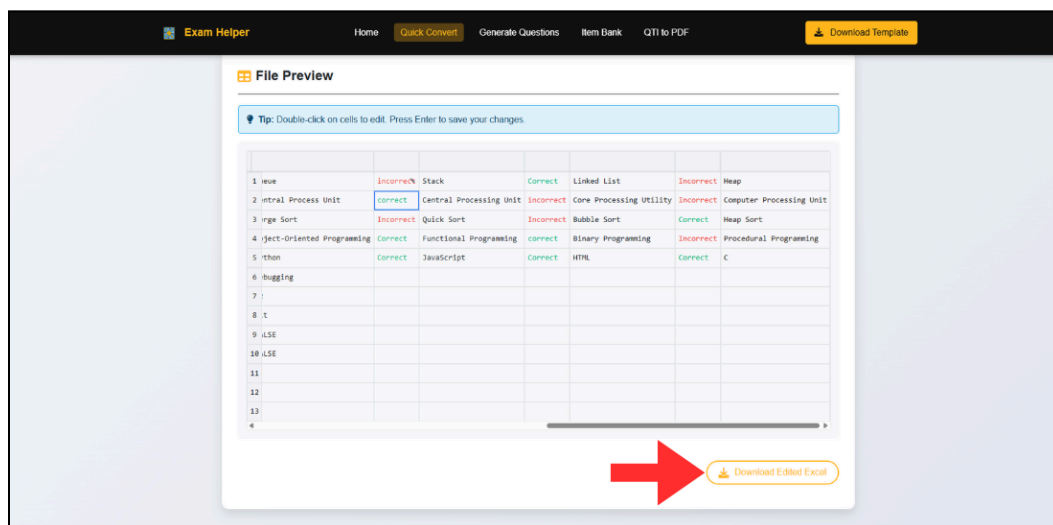
Figure 3.9 Download Edited Excel Button

After clicking the "Convert to QTI" button, a conversion summary will be displayed at the bottom of the page (refer to Figure 3.10). This summary provides key details and a breakdown of the components included in the generated exam. Once the conversion

summary has been reviewed, users may proceed by clicking the "Download QTI Package" button. At this stage, they will be prompted to rename the file if desired. After confirming, the package will be downloaded and automatically saved to their downloads folder for easy access.
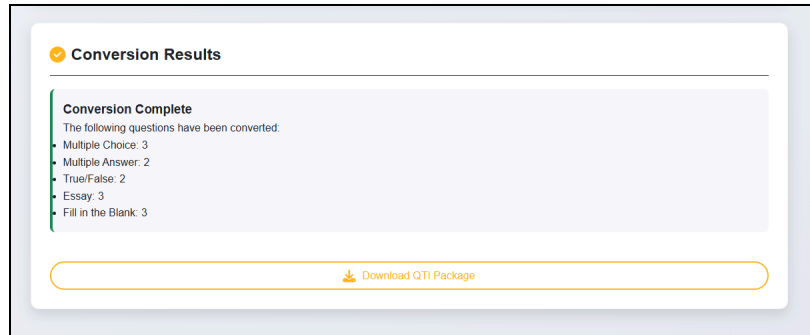

Figure 3.10 Conversion Summary

F. Generate Questions

The Generate Questions feature empowers users to create customized quiz questions in various formats and seamlessly export them into QTI format for use in learning management systems. To begin, navigate to the Generate Questions page from the main navigation menu. The interface is intuitively designed, featuring two key sections: Quiz Details and Questions.

Enter the necessary information under Quiz Details (see Figure 3.11). Here, you are required to provide a title for your quiz in the Quiz Title field. While optional, it is recommended to include instructions for quiz takers in the Quiz Instructions field to guide them throughout the assessment.
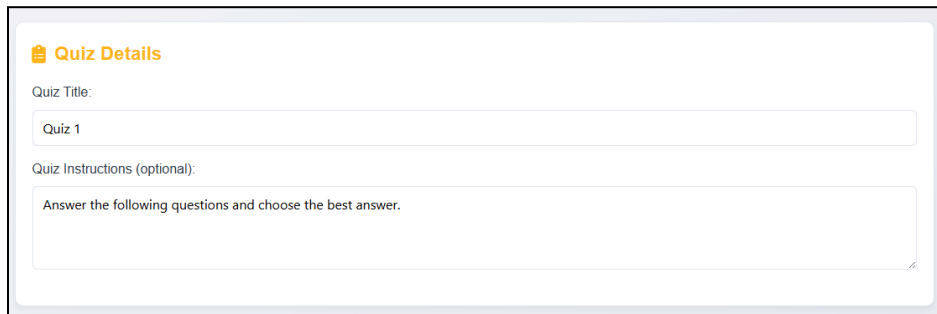
Figure 3.11 Quiz Details

Next, proceed to the Questions section, where you can begin building your quiz. By clicking the "+" button, a dropdown menu will present you with multiple question types to choose from: Multiple Choice, Multiple Answer, True or False, Fill in the Blank, and Essay (see Figure 3.12). Select your preferred question type to begin creating questions.
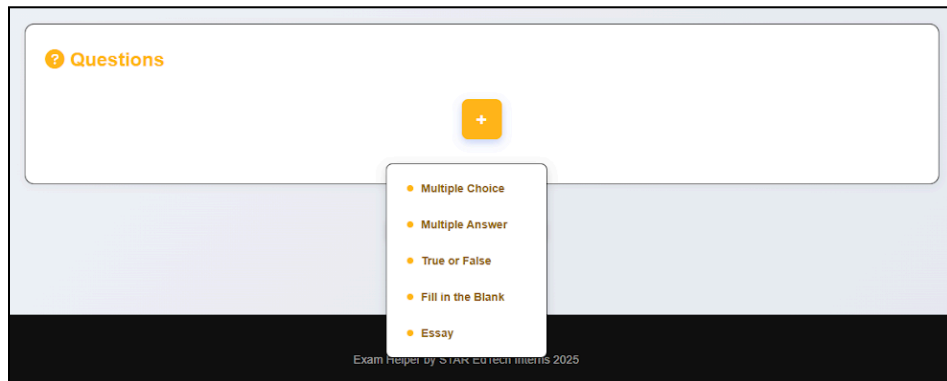
Figure 3.12 Add a Question

F.1 Multiple Choice

For Multiple Choice questions, input the question text and provide at least two answer options. Mark the correct option by selecting the corresponding radio button. Additional options can be added using the "+ Add Answer Option" button, and any unnecessary options may be removed.
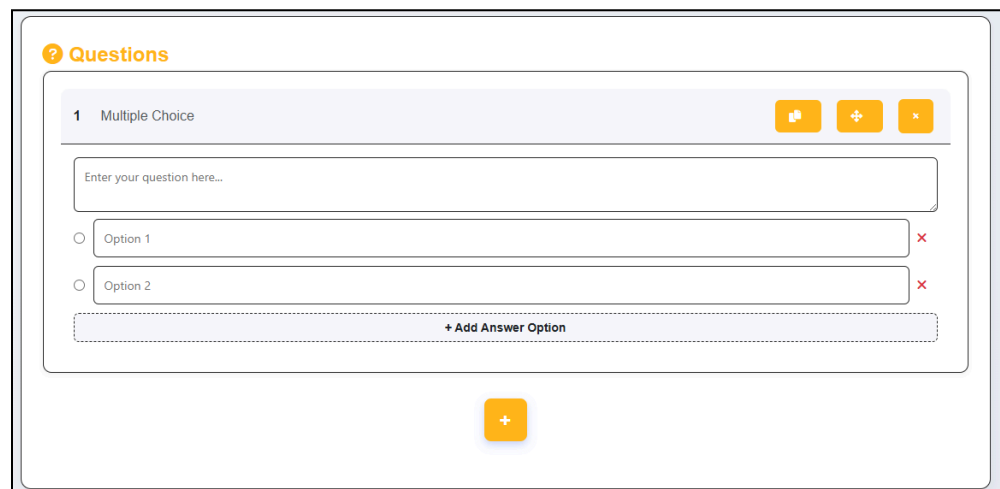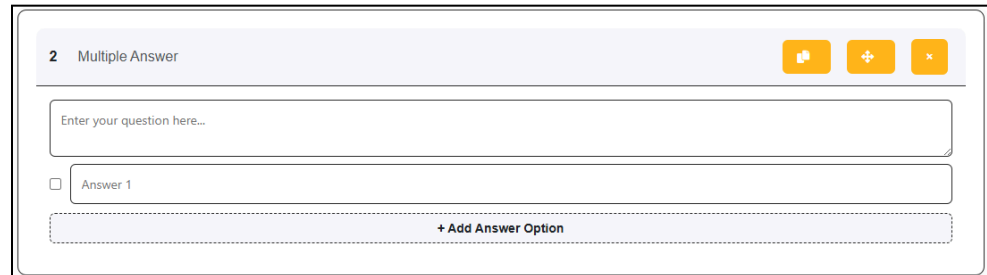
Figure 3.13 Add a Question, Multiple Choice

F.2 Multiple Answer

For Multiple Answer questions, you may select multiple correct answers using checkboxes. Similar to multiple choice, you can add or remove answer options as needed.

Figure 3.14 Add a Question, Multiple Answer

F.3 True or False

For True or False questions, provide the question text and select either True or False as the correct answer. Additionally, there is an option to format the question as a fill-in-the-blank.
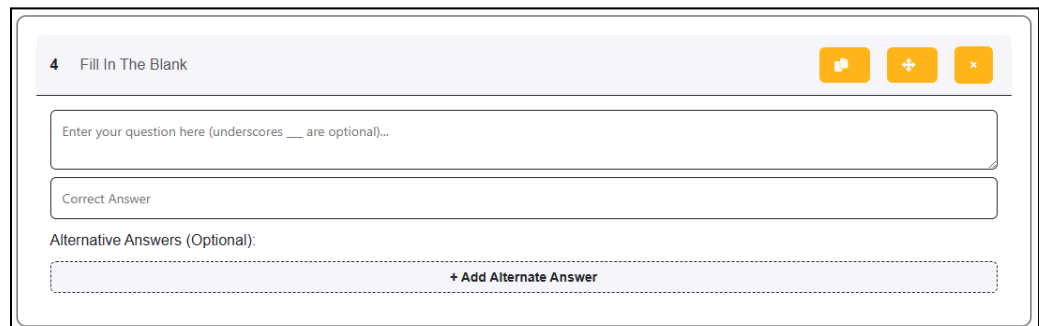
Figure 3.15 Add a Question, True or False

F.4 Fill in the Blank

For fill-in-the-blank questions, it is required to provide the question text, then input the correct answer and any alternative acceptable answers if needed.

Figure 3.16 Add a Question, Fill-in-the-blank

F.5 Essay

For Essay questions, simply provide the prompt, as these questions are open-ended and do not require answer options.
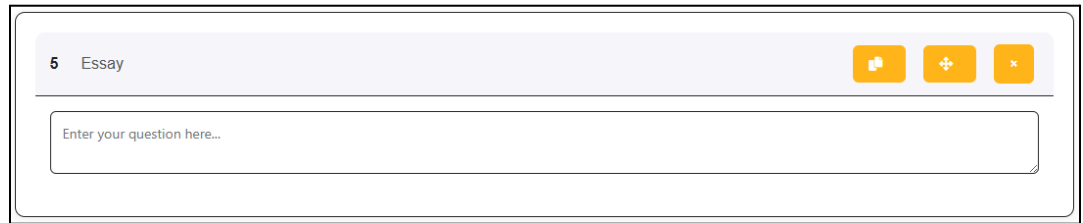
Figure 3.17 Add a Question, Essay
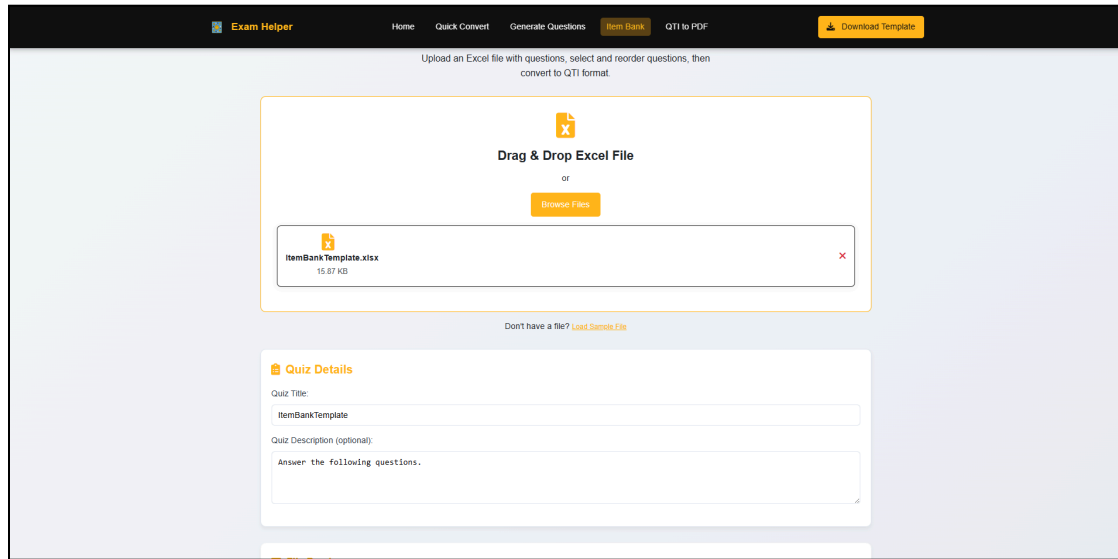
Users can easily manage and organize their quiz by reordering, duplicating, or deleting questions. The system automatically renumbers the questions when changes are made.

Once satisfied with the quiz, click "Export as QTI" to generate the QTI package. The system will validate your input to ensure all necessary fields are completed. This includes verifying that the quiz title is provided, questions contain text, and all required answer criteria are met depending on the question type.

If the validation is successful, a QTI package in .zip format will be generated and ready for download. A success message will confirm that the export is complete.

G. Item Bank

The Item Bank feature is a dynamic tool designed to simplify the creation of quizzes by enabling users to build assessments from pre-existing collections of questions, a template is provided for use (refer to Part III Sections C and D for further guidance). To begin, users are required to upload an Excel file containing their questions. This can be done either by dragging and dropping the file onto the platform or by clicking the "Browse Files" button to manually select it. For those unfamiliar with the system, a sample file is available to demonstrate its functionality (see Figure 3.18).

Figure 3.18 Item Bank Uploading of File

Once the file is uploaded, the system prompts the user to enter essential quiz information, such as a title and optional instructions or a description for the quiz takers. The tool then categorizes the questions by type and presents them in a tabbed interface for easy navigation (see Figure 3.19).

Figure 3.19 File Preview

The preview highlights key issues with the file being reviewed. In this case, it displays a warning indicating that a multiple-choice question contains two correct answers, which violates the rule that multiple-choice questions should only have one correct answer. These issues are flagged prominently to prompt the user to make the necessary corrections.

At the bottom of the interface, users are provided with two key action buttons: one to "Commit Changes," which saves the edits made, and another to "Download Edited File," which allows the user to export the updated version of the file. Additionally, there is an additional feature, wherein users can double-click to edit any cell and press Enter to save or Esc to cancel edits. Below the File Preview is the Question Summary (see Figure 3.20), which displays the total number of questions and categorizes them by type. This helps the users to quickly assess the quiz's structure and ensure a balanced variety of question formats.
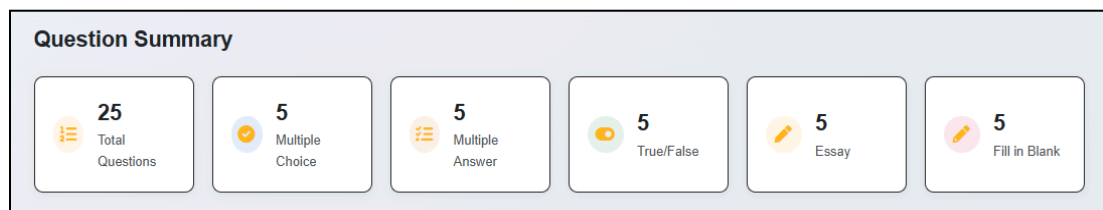
Figure 3.20 Question Summary

On the item bank part, users can select questions by dragging them from the available list into the selection area. The system allows full control over question order and provides options to remove or rearrange items as necessary. If needed, all selected questions can be cleared with a single click of the "Clear" button (refer to Figure 3.21) .

When the quiz is finalized, users can export it by clicking the "Convert to QTI" button. The system automatically generates a QTI package (in ZIP format) compatible with the learning management system. The file can then be downloaded and imported into the Canvas.
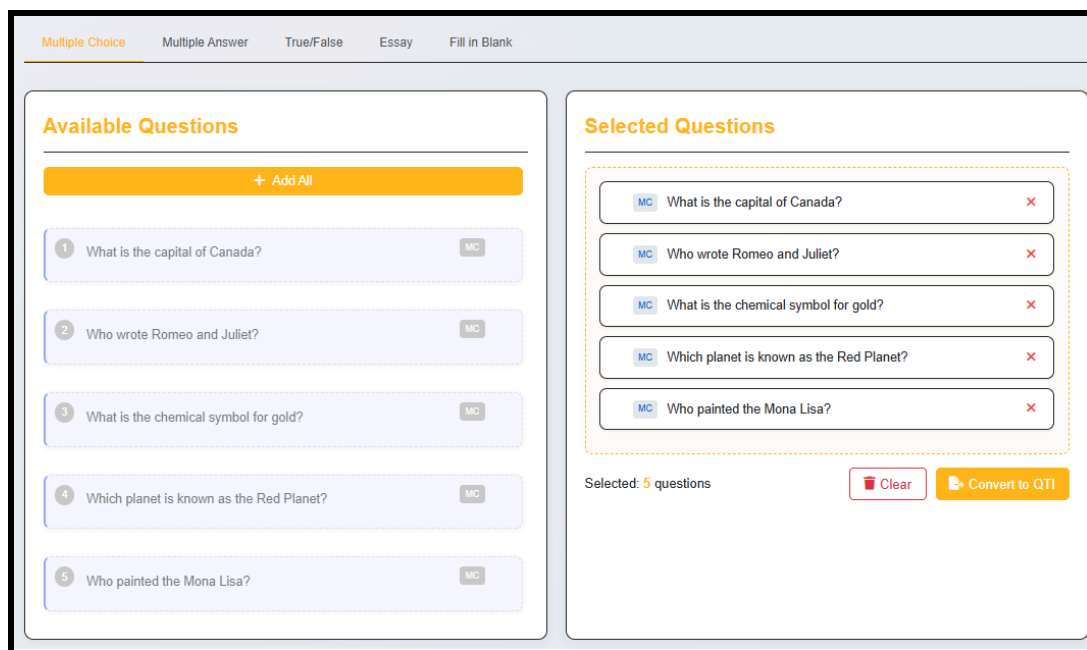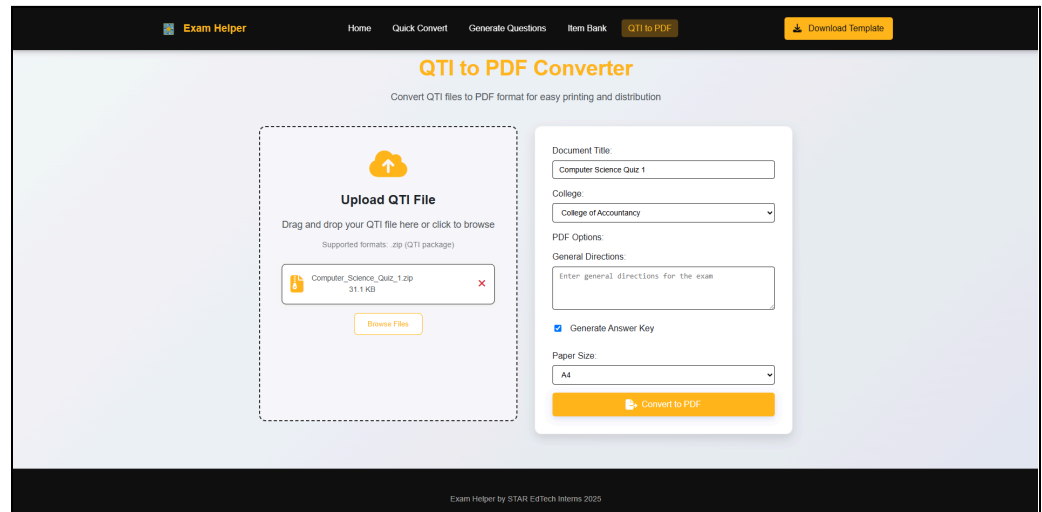

Figure 3.21 Item Bank

H. QTI to PDF

This page facilitates the conversion of QTI files into PDF format. The document title will automatically default to the file name upon importing an exam, although users may modify it as needed (refer to Figure 3.22).
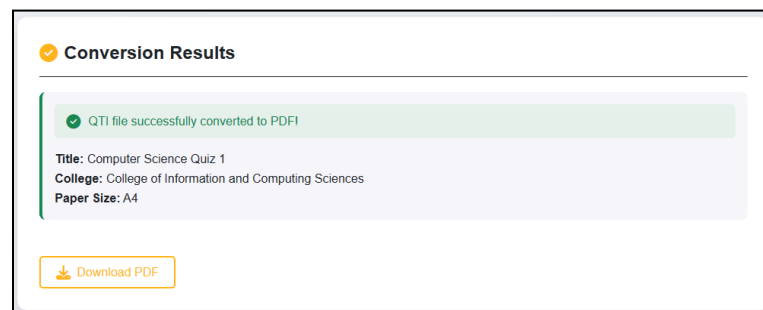
To initiate the conversion process, users must complete the form located on the right side of the page, providing essential information such as the document title, College, and general directions. Additionally, an option is available to include the answer key within the generated PDF by selecting the corresponding checkbox. If the checkbox is left unchecked, the PDF will be generated without answers. The conversion button will only be enabled once all required fields have been properly completed.

Figure 3.22 QTI to PDF Interface

Upon clicking the "Convert to PDF" button, a conversion summary will be displayed, confirming all essential details. Once reviewed, users can proceed to download the PDF version of the exam. A sample PDF file is shown below (see Figure 1)
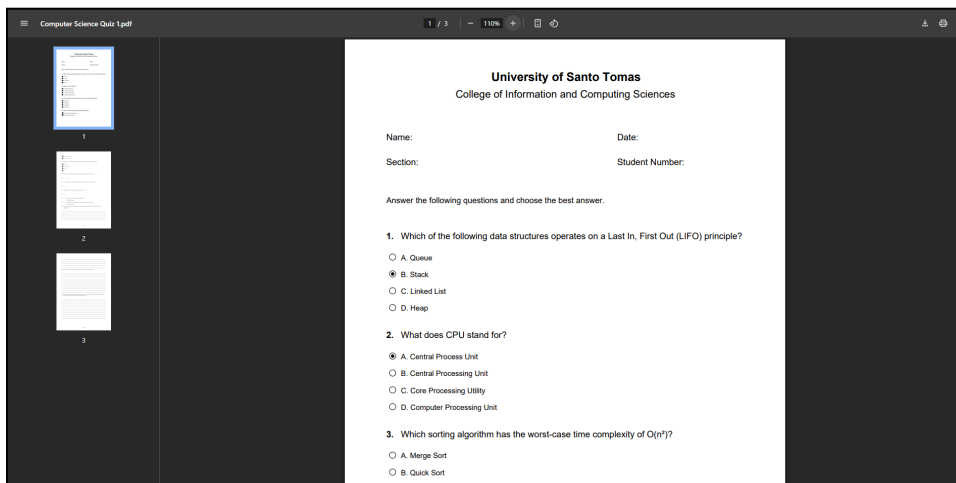

Figure 3.23 Conversion Results

Figure 3.24 Sample PDF File

IV.   Import a QTI File into Canvas

To import a QTI file into Canvas, users must first log into their Canvas account and navigate to the course where they wish to upload the exam. From the course's Home page, they will find a set of buttons on the right-hand side of the screen. The topmost option is Import Existing Content. By clicking this button, users will be directed to the Import Content page.
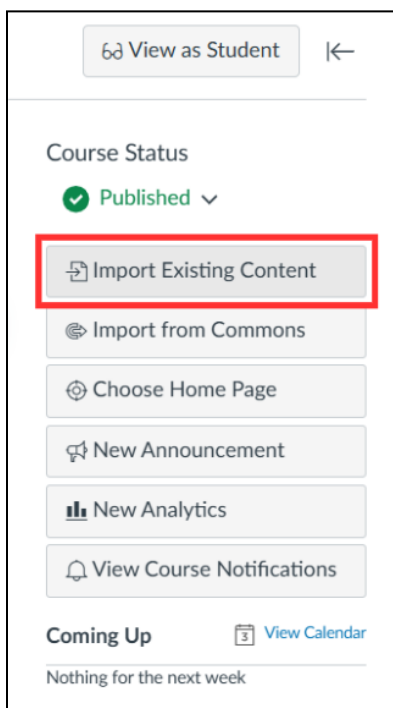

Figure 4.1 Import Existing Content Button

On this page, a dropdown menu labeled Content Type will be visible. Users must select QTI .zip file from the list of available options. Once selected, they will be prompted to upload the QTI package by clicking the Choose File button and locating the appropriate .zip file on their device.
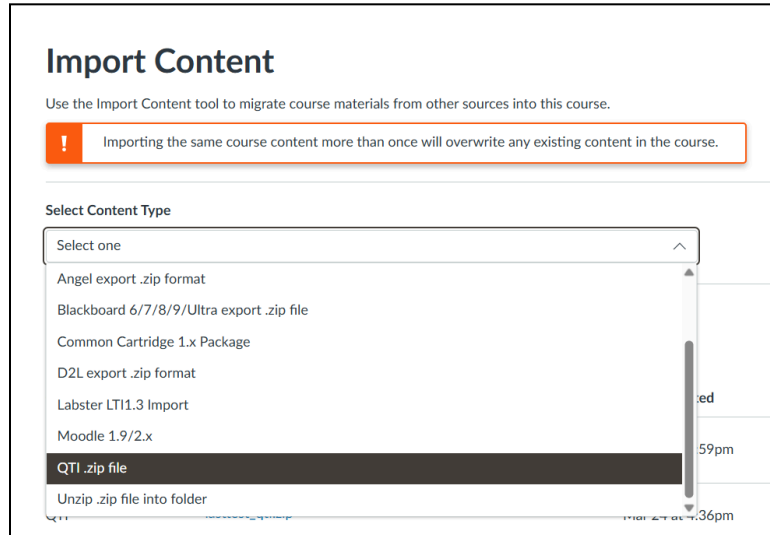

Figure 4.2 Select Content Type

After uploading the file, users can proceed with configuring additional settings if necessary before finalizing the import.

Once all settings are configured, users can proceed by clicking the Import button to begin the file upload and conversion process. The system will then process the QTI package, and users can monitor the progress on the same page. Once completed, the imported assessments or questions will be accessible in the course's Quizzes or Question Banks sections, ready for review and deployment.

Figure 4.3 Import Queue

Once done, the assessment will be made available on the Quizzes tab, where you can make further modifications or ready for deployment.