



**Vendor:** Microsoft

**Exam Code:** MS-600

**Exam Name:** Building Applications and Solutions with  
Microsoft 365 Core Services

**Version:** DEMO

## QUESTION 1

### Case Study 1 - ADatum

#### Overview

ADatum Corporation develops a software as a service (SaaS) application named E-invoicing.

#### Existing Environment

##### Application Architecture

E-invoicing consists of a single-page application (SPA) and a backend web service that provides invoice management and processing functionality.

E-invoicing stores all the details of each invoicing operation in a backend cloud database. E-invoicing generates invoices in PDF format and provides users with the ability to download the PDF after it is generated. Each invoice has a unique identifier named invoiceid.

The users have a common workflow where they sign in to E-invoicing, and then open E-invoicing in multiple tabs of a web browser so they can use different parts of the application simultaneously.

##### Security Architecture

ADatum uses the principle of least privilege whenever possible. ADatum always uses the latest libraries and integration endpoints.

#### Requirements

##### Business Goals

ADatum wants to integrate E-invoicing, Azure Active Directory (Azure AD), and Microsoft Graph so that their customers can leverage Microsoft Office 365 services directly from within E-invoicing.

You need to configure the initial login request in the access token JavaScript script.

Which code segment should you insert at line 01?

- A. `const scopes = ['https://graph.microsoft.com/.default'];`
- B. `const accessTokenRequest = {  
};`
- C. `const scopes = ['https://graph.microsoft.com/Files.Read.All',  
'https://graph.microsoft.com/Mail.Send.All'];`
- D. `const accessTokenRequest = {  
 scopes: ['https://graph.microsoft.com/Files.ReadWrite',  
'https://graph.microsoft.com/Mail.Send']  
};`

**Answer: D**

#### Explanation:

Scenario: ADatum identifies the following technical requirements for the planned E-invoicing capabilities:

Ensure that all operations performed by E-invoicing against Office 365 are initiated by a user.

Require that the user authorize E-invoicing to access the Office 365 data the first time the application attempts to access Office 365 data on the user's behalf.

Reference: <https://docs.microsoft.com/en-us/graph/permissions-reference>

## QUESTION 2

### Case Study 2 - Contoso

### Existing Environment

Microsoft 365

Contoso identifies the following business goals:

- \* Utilize core functionality of apps whenever possible.
- \* Reduce app development costs.
- \* Minimize training costs for end users.

### Microsoft SharePoint/Microsoft Exchange

Contoso has a Microsoft 365 subscription that uses a domain named contoso.com. Each user is assigned a Microsoft 365 Enterprise E5 licence.

### Problem Statement

Contoso moves all email accounts to Microsoft 365.

Contoso migrates the SharePoint Server 2013 intranet sites of the research department to SharePoint Online.

### Requirements

#### Business Goals

Contoso identifies the following issues:

- \* Users in the sales department report that preparing quotations is time-consuming as it requires manually copying and pasting data from multiple sources.
- \* Users in the HR department must use multiple apps to manage the hiring process.
- \* The solution to claim expenses requires multiple manual steps.

#### Planned Changes

Contoso identifies the following business goals:

- \* Utilize core functionality of apps whenever possible.
- \* Reduce app development costs.
- \* Minimize training costs for end users.

### Technical Requirements

Contoso plans to implement the following changes;

- \* Redesign the SharePoint Online sites of the research department to provide users with an experience that is consistent with the Microsoft 365 portal. The research department has a third-party project management solution that uses the Microsoft identity platform in Azure AD.
- \* Create an email workflow solution for expense claims. Users will submit their expense claims and the system will email an approval request to their manager.
- \* Implement a bring your own device (BYOD) model that supports Windows 10, macOS, and Android devices.
- \* Develop a custom Microsoft 365 app named SalesApp for the sales department.
- \* Develop a custom Microsoft 365 app named HRApp for the HR department

You need to provide users with access to SalesApp. The solution must meet the technical requirements. What should you include in the solution?

- A. App Catalog in SharePoint Online
- B. sideloading
- C. Centralized Deployment
- D. Microsoft AppSource

**Answer: A**

#### Explanation:

An app catalog is a dedicated site collection in a SharePoint web application or SharePoint Online tenancy that hosts document libraries for Office and SharePoint Add-ins. To make Office Add-ins accessible to users within their organization, administrators can upload Office Add-ins

manifest files to the app catalog for their organization. When an administrator registers an app catalog as a trusted catalog, users can insert the add-in from the insertion UI in an Office client application.

Scenario:

SalesApp must be integrated with Microsoft Word and must combine images and text from multiple sources to create a quotation as a DOCX file.

The distribution of SalesApp must be automatic and require minimal user interaction.

Reference:

<https://docs.microsoft.com/en-us/office/dev/add-ins/publish/publish-task-pane-and-content-add-ins-to-an-add-in-catalog>

### QUESTION 3

**Note:** This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets have more than one correct solution, while others might not have a correct solution.

**After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.**

You are developing a new application named App1 that uses the Microsoft identity platform to authenticate to Azure Active Directory (Azure AD).

Currently, App1 can read user profile information.

You need to allow App1 to read the user's calendar.

Solution: Add <https://graph.windows.net/user.read> to the list of scopes during the initial login request.

Does this meet the goal?

- A. Yes
- B. No

**Answer: B**

**Explanation:**

Microsoft Graph Calendars.Read allows the app to read events in user calendars.

For your app to access data in Microsoft Graph, the user or administrator must grant it the correct permissions via a consent process.

Application permissions are used by apps that run without a signed-in user present; for example, apps that run as background services or daemons. Application permissions can only be consented by an administrator.

References: <https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-permissions-and-consent>

<https://docs.microsoft.com/en-us/graph/permissions-reference>

### QUESTION 4

You plan to deploy a SharePoint Framework (SPFx) solution to the tenant app catalog.

Which attribute should you configure in the package-solution.json file to ensure that the solution is available immediately to all site collections?

- A. skipFeatureDeployment
- B. zippedPackage
- C. ClientSideComponentId
- D. isDomainIsolated

**Answer: A**

**Explanation:**

You can configure your SharePoint Framework components to be immediately available across the tenant when the solution package is installed to the tenant app catalog. This can be configured by using the skipFeatureDeployment attribute in the package-solution.json file. Reference: <https://docs.microsoft.com/en-us/sharepoint/dev/spfx/tenant-scoped-deployment>

**QUESTION 5**

You are developing a Microsoft Teams application for a support staff.

Within a conversation between the support staff, you want the staff to look up support ticket IDs from a list without opening the ticketing system.

Which feature should the application include?

- A. a bot
- B. a connector
- C. a messaging extension
- D. a tab

**Answer: C**

**Explanation:**

Messaging extensions allow users to interact with your web service through buttons and forms in the Microsoft Teams client. They can search, or initiate actions, in an external system from the compose message area, the command box, or directly from a message. You can then send the results of that interaction back to the Microsoft Teams client, typically in the form of a richly formatted card.

Reference: <https://docs.microsoft.com/en-us/microsoftteams/platform/messaging-extensions/what-are-messaging-extensions>

**QUESTION 6**

You are developing a mobile application that will display the current signed-in user's display name and the application settings. The application settings are stored as Microsoft graph extension of the user profile.

Users of the application have intermittent network connectivity.

You need to retrieve the least amount of data by using a single REST request. The solution must minimize network traffic.

Which URI Should you use to retrieve the data?

- A. [https://graph.microsoft.com/v1.0/me?\\$select=displayName,userType&\\$expand=extensions](https://graph.microsoft.com/v1.0/me?$select=displayName,userType&$expand=extensions)
- B. <https://graph.microsoft.com/v1.0/me>
- C. [https://graph.microsoft.com/v1.0/me?\\$select=displayName,id&\\$expand=extensions](https://graph.microsoft.com/v1.0/me?$select=displayName,id&$expand=extensions)
- D. [https://graph.microsoft.com/v1.0/me?\\$expand=extensions](https://graph.microsoft.com/v1.0/me?$expand=extensions)

**Answer: C**

**Explanation:**

For the event, group event, group post, message, personal contact, task, task list resource types, you can use the same REST request as getting the resource instance, look for an extension that matches a filter on its id property, and expand the instance with the extension. The response includes most of the resource properties.

Example: GET /users/{Id|userPrincipalName}/events/{Id}/extensions/{extensionId}

Reference:

<https://docs.microsoft.com/en-us/graph/api/opentypeextension-get>

### QUESTION 7

This question requires that you evaluate the underlined text to determine if it is correct.

Microsoft Visual Studio Code contains samples that you can use to quickly prototype a Microsoft Office Web Add-in for Microsoft Word.

Instructions: Review the underlined text. If it makes the statement correct, select "No change is needed." If the statement is incorrect, select the answer choice that makes the statement correct.

- A. No change is needed.
- B. Microsoft AppSource
- C. The Office UI Fabric
- D. The Script Lab add-in

**Answer: D**

**Explanation:**

The Script Lab and Script Lab for Outlook add-ins, available free from AppSource, enable you to explore the Office JavaScript API while you're working in an Office program such as Excel or Outlook. Script Lab is a convenient tool to add to your development toolkit as you prototype and verify functionality you want in your own add-in.

Reference:

<https://docs.microsoft.com/en-us/office/dev/add-ins/overview/explore-with-script-lab>

### QUESTION 8

You have an application named App1 that is used to administer an Azure Active Directory (Azure AD) tenant.

When administrators install App1, they are prompted for admin consent.

Which application permission can cause the administrators to be prompted for consent?

- A. RoleManagement.ReadWrite.Directory
- B. Calendars.ReadWrite
- C. Device.Read
- D. Calendars.ReadWrite.Shared

**Answer: A**

**Explanation:**

By default, all users are allowed to consent to applications for permissions that don't require administrator consent. For example, by default, a user can consent to allow an app to access

their mailbox but can't consent to allow an app unfettered access to read and write to all files in your organization.

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/configure-user-consent>

#### QUESTION 9

You are developing a SharePoint Framework (SPFx) web part. The web part will call a backed API that is secured by using Azure Active Directory (Azure AD). The web part will be on a page that has many other web parts.

Which type of web part should you use ensure that access to the exclusive to the web part?

- A. Provider-hosted
- B. SharePoint-hosted
- C. isolated
- D. Connected

**Answer: C**

**Explanation:**

When added to the page, isolated web parts are displayed using an iframe. This iframe points to a unique domain assigned to the SharePoint Framework solution where the web part is located. This domain is also referenced in the return URL of the Azure AD application created to host the isolated permissions for the particular SharePoint Framework solution. Using the unique domain allows to ensure, that only web parts from the particular SharePoint Framework solution can obtain an access token for the isolated set of permissions.

<https://learn.microsoft.com/en-us/sharepoint/dev/spfx/web-parts/isolated-web-parts>

#### QUESTION 10

You are building a Microsoft Office Add-in for Outlook that will use the Microsoft Graph REST API to retrieve a user's documents from a Microsoft SharePoint Online site.

What should the add-in provide to retrieve the documents on behalf of the user?

- A. an identity token
- B. a single sign-on (SSO) token
- C. a refresh token
- D. an access token

**Answer: D**

**Explanation:**

Get an access token.

Note: The Outlook REST APIs require a bearer token in the Authorization header. Typically, apps use OAuth2 flows to retrieve a token. However, add-ins can retrieve a token without implementing OAuth2 by using the new `Office.context.mailbox.getCallbackTokenAsync` method introduced in the Mailbox requirement set 1.5.

After your add-in has the access token, item ID, and REST API URL, it can either pass that information to a back-end service which calls the REST API, or it can call it directly using AJAX.

Reference:

<https://docs.microsoft.com/en-us/office/dev/add-ins/outlook/use-rest-api>

#### QUESTION 11

You develop a Teams app that has a task module to display an Adaptive card that can be used to collect customer information.

You need to have the task module invoked in Teams. The effort to accomplish this should be kept to a minimum.

Which three ways can you use to invoke the task modules? Each correct answer presents a complete solution.

- A. Deep link
- B. Bots
- C. Webhook
- D. Tab
- E. Messaging Extensions

**Answer:** ABD

**Explanation:**

Task modules can be invoked from a deep link outside Teams, bots, and personal tabs.

Task modules should be used to provide a model popup experience in Teams applications. You can show a widget such as Vimeo or Streams, custom JavaScript/HTML code, or display an adaptive card.

You can create a deep link for most entities within Teams. Deep links may be useful when navigating the user to content within one of your app's tabs.

Task modules can be invoked from Microsoft Teams bots using buttons on Adaptive cards and Bot Framework cards.

Task modules can be invoked from a Teams tab using `microsoftTeams.tasks.startTask()` passing a `TaskInfo` object and an optional `submitHandler` callback function.

Task modules cannot be invoked from a messaging extension. Messaging extensions allow users to interact with your web service through buttons and forms in the Microsoft Teams client.

Task modules cannot be invoked from a webhook. Webhooks are used to post data to or from Teams to any chosen service capable of accepting a JSON payload.

## QUESTION 12

You have a SharePoint Framework (SPFx) web part named WebPartA that uses SPFx 1.11.0.

You need to ensure that WebPartA can be installed as an app in Microsoft Teams.

What should you do?

- A. Update the WebPartA.manifest.json file.
- B. Update the Config.json file.
- C. Upload WebPartA to the Microsoft Teams app catalog.
- D. From a command prompt, run the `yo @microsoft/sharepoint` command.

**Answer:** A

**Explanation:**

Update the web part manifest to make it available for Microsoft Teams.

Locate the `./src/webparts/**/manifest.json` file for the web part you'll use as the tab for the meeting app solution. Locate the `supportedHosts` property to include "TeamsTab".

Reference:

<https://docs.microsoft.com/en-us/sharepoint/dev/spfx/build-for-teams-meeting-app#update-the-web-part-manifest-to-make-it-available-for-microsoft-teams>

## QUESTION 13

Drag and Drop Question



You are developing a web app that will display emails from the Microsoft 365 mailbox of the current signed-in user.

For performance reasons, you do not want all the emails to be loaded simultaneously, rather page-by-page as the user navigates the app.

You plan to display 30 emails per page. The most recent emails must be displayed first.

How should you complete the query parameters for the REST request to display the third page of emails? To answer, drag the appropriate query parameters to the correct targets. Each query parameter may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Actions	Answer Area
filter	GET https://graph.microsoft.com/v1.0/me/messages?\$
search	Parameter =60&\$
select	Parameter =30&\$orderby=sentDateTime desc
skip	
top	

**Answer:**

Actions	Answer Area
filter	GET https://graph.microsoft.com/v1.0/me/messages?\$
search	skip =60&\$
select	top =30&\$orderby=sentDateTime desc

**Explanation:**

Box 1: skip

With skip=60 you skip the first two pages and you get the third page.

Box 2: top

In order to get 30 mails per page you must use top=30.

Incorrect Answers:

\$select

To specify a different set of properties to return than the default set provided by the Graph, use the \$select query option. The \$select option allows for choosing a subset or superset of the default set returned. For example, when retrieving your messages, you might want to select that only the from and subject properties of messages are returned.

\$search

To restrict the results of a request that match a search criterion, use the \$search query parameter. You cannot use \$filter or \$orderby in a \$search request.

Reference: [https://developer.microsoft.com/en-us/graph/docs/overview/query\\_parameters](https://developer.microsoft.com/en-us/graph/docs/overview/query_parameters)

#### QUESTION 14

##### Drag and Drop Question

Your company publishes a price list to a web service.

You need to provide users with the ability to check the prices from a Microsoft Teams chat and share the results directly in the current chat by querying the web service. The users must be able to get the prices by invoking a Microsoft Teams app. As soon as the app is invoked, a list of prices for popular products must be displayed without any input from the users.

Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Actions	Answer Area
Configure a new Microsoft Office 365 connector in the app manifest.	
Create a Microsoft Bot Framework registration resource in Azure.	
Configure a new webhook in the app manifest.	
Add composeExtensions to the app manifest.	
Set initialRun to true.	

Answer:

Actions	Answer Area
Configure a new Microsoft Office 365 connector in the app manifest.	Create a Microsoft Bot Framework registration resource in Azure.
	Set initialRun to true.
Configure a new webhook in the app manifest.	Add composeExtensions to the app manifest.

#### Explanation:

Step 1: Create a Microsoft Bot Framework registration resource in Azure.

Step 2: Set initialRun to true.

initialRun - A Boolean value indicates whether the command runs initially with no parameters. Default is false.

Note: The Microsoft Teams app manifest describes how your app integrates into the Microsoft Teams product.

Step 3: Add composeExtensions to the app manifest.

composeExtensions - Optional array. Defines a message extension for the app.  
composeExtensions.commands

Your message extension must declare one or more commands with a maximum of 10 commands. Each command appears in Microsoft Teams as a potential interaction from the UI-based entry point.

Reference:

<https://docs.microsoft.com/en-us/microsoftteams/platform/resources/schema/manifest-schema>

#### QUESTION 15

You need to build a customizer that will modify the header and footer of each page of a Microsoft SharePoint Online site.

You use the Yeoman generator to create a new SharePoint Framework (SPFx) project.

What should you do next?

- A. Create a Field Customizer and render the custom content for top and bottom placeholders.
- B. Create an Application Customizer and render the custom content for top and bottom placeholders.
- C. Create an Application Customizer, override the Render method, and provide a custom header and footer.
- D. Create a Field Customizer, override the Render method, and provide a custom header and footer.

**Answer: C**

**Explanation:**

Application customizer provides access to predefined locations on the SharePoint page and allows us to customize them.

Implement the `_renderPlaceHolders` method

Reference:

<https://www.c-sharpcorner.com/article/sharepoint-framework-extensions-application-customizer-overview/>

#### QUESTION 16

You are developing an app that will query the tenant for the names of all the Microsoft Teams teams in the organization.

What permission will the app require? Your solution must follow the principle of least privilege.

- A. Channel.ReadBasic.All
- B. TeamSettings.Read.All
- C. Directory.Read.All
- D. Group.Read.All

**Answer: D**

**Explanation:**

To use the Microsoft Teams API in Microsoft Graph to list all teams in an organization (tenant), you find all groups that have teams, and then get information for each team.

Need Group.Read.All to get access to groups.

Reference:

<https://docs.microsoft.com/en-us/graph/teams-list-all-teams>

#### QUESTION 17

You plan to develop a client-side JavaScript web app that will be registered to the Microsoft identity platform and use Microsoft Authentication Library (MSAL) v2.0.

Which type of authorization flow should you use?

- A. client credentials grant
- B. device code
- C. resource owner password credentials grant
- D. authorization code grant

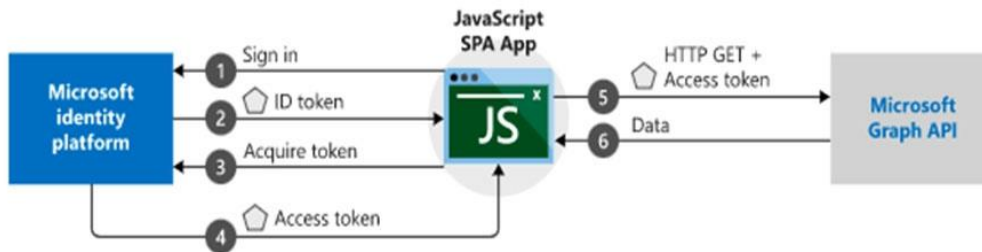
**Answer: D**

**Explanation:**

Authorization code - User sign-in and access to web APIs on behalf of the user.

Supported application types:

- \* Desktop
- \* Mobile
- \* Single-page app (SPA) (requires PKCE)
- \* Web



Incorrect:

The other authentication flows do not support Single-page apps (SPAs).

Reference:

<https://docs.microsoft.com/en-us/azure/active-directory/develop/msal-authentication-flows>

**QUESTION 18**

You are building an app that will use the Microsoft Graph API and the Microsoft identity platform to enable users to perform the following tasks:

- Sign in to Azure Active Directory (Azure AD).
- View all the Microsoft 365 groups that they own.

Each week, the app will also email the users a list of the Microsoft 365 groups to which they belong.

You need to identify which permissions to assign to the app. The solution must use the principle of least privilege.

What should you identify?

- A. User.Read delegated, Group.Read delegated, Group.Read application, and Mail.Send application permissions
- B. User.Read delegated, Group.Read application, and Mail.Send delegated permissions
- C. User.Read delegated, User.Read application, Group.Read application, and Mail.Send application permissions
- D. User.Read delegated, Group.Read delegated, and Mail.Send delegated permissions

**Answer: D**

**Explanation:**

Microsoft Graph API mail.send delegated permission is less privileged than mail.send application permission.

The same is true for Group.Read delegated compared to Group Read application.

Reference:

<https://docs.microsoft.com/en-us/graph/api/user-sendmail?view=graph-rest-1.0&tabs=http>

<https://docs.microsoft.com/en-us/graph/permissions-reference>

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