Q1:

The software development method I would recommend for this situation is Agile. Because this is a quite complex project, the requirements are not clear and need to discuss further with the customer during implementation. Therefore, the Agile method is the right method for this situation.

Here are some of the characteristics of this situation that make agile a good choice:

**a, Requirements characteristics:**

**-Reliability:**

+ It was stated clearly above that there is a problem that needs to have role of Lecturer, Student, Academic staff.

+ Project requirements are being clearly defined step by step and feasible.

+ This project is possible to run and deploy when completed.

+ The initial requirements are not precisely defined and may evolve or undergo slight modifications during the app development process to stay aligned with market trends and user preferences.

=> The project has a high reliability.

**-Types and number of requirement:**

+ The software requirements contain both *functional requirements* and *non-functional requirements*.

+ All requirements are clearly and easily defined.

+ There are requirements that were listed above such as with Lecturer , they can manage constructive questions and student group,… . With student, they can view constructive questions,…. and Academic staff , they can provide functions that allow statistics on class hours conducted according to the constructivist method,… .

=> Types and number of requirements are defined and this project is not too complex for the team.

**- How often the requirement can change:**

+ The requirements that were mentioned above are just some features of web application.

+ In the process of developing the project with technology growing rapidly and change regularly, some features can be modified to meet the requirements of the users.

=> The requirements may be changed regularly in the future in order to suitable for everyone and technology recent help users feel comfortable and simple while using process.

**-Determination of requirements at an early stage:**

+ Some of the requirements are expressed in great detail above but it isn’t enough to build a completed system.

+ The organization can add or remove some features in the process of the project.

+ Some requirements presented very detail above but It’s not still enough to build a well system.

=> It is well-defined but not enough.

**b, Development Team:**

**-Team size :**

+ The situation above mentioned our are FU’s IT deparment and me.

=> It is an average team size and enough to build a project that was not too complex.

**-Level of understanding of user requirements by the developers:**

+ All of the requirements defined clearly above and our members can understand.

+ The organization can provide additional resources and information when needed.

+ The team members share a common language, facilitating seamless communication and productive teamwork. This advantage significantly contributes to timely task completion.

+ Because with the experienced resources of the FU’s IT deparment so each team member possesses a high level of expertise and experience in their assigned roles and responsibilities.

=> Our team can easily understand and build an application that meets the requirements.

**-User involvement:**

+ Considered large due to the project's focus on internal company use, primarily targeting employees. This significant user involvement stems from the project's scope.

+ Project size: Medium

+ We have a contact with the organization to communicate and give feedback about the project.

=> The user involvement is high.

To conclude, based on the characteristics requirements that I listed above, I suggest use Agile.The system must be delivered earlier for the user to buy quickly in technology more and more development and update new features context, therefore they should deliver part of the project earlier to get feedback from the user, then apply necessary change for another part. This customer-centric approach ensures that the final product meets the requirements of its users. Overall, the Agile/Scrum methodology is well-suited for this software development project and will likely result in a high-quality end product.

Q2:

I suggest that the team use black-box testing because users would be involved in evaluating the project's flaws and providing feedback, particularly regarding the system's usability. In addition, the tester's information and experience are absent from the project description. Additionally, black-box testing permit analyzer can be non-specialized and There is no requirement for the analyzer to have itemized practical information on framework. Tester will do test in each test level/stage.

Q3:

-Four functional requirements:

+Lecturer can create reports on student activities.

+The system also provides the ability for student to view constructive questions.

+The system needs to provide functions that allow statistics on class hours conducted according to the constructivist method.

+Monitor student’s feedback during the learning process.

-Two non-functional:

+Users to log in with the FU’s email account on the Gmail platform.

+Users can use the manual without having to attend official training courses.

Q6:

-Two user stories:

+ As a user, I want user information to be carefully secured so that they can use it with peace of mind for a long time.

+As a member of IT team, I want to browser compatibility so that more users can join.Because the number of people use Chrome, Edge,….. is higher and higher.

Q5:

FOUR TEST CASE:

-Test case 1:

+ Description : test performance of the system

+ Input : 10000 users learn in this time.

+ Expected: All users can learn on web.

+ Output: All users can learn on web.

+ Exception: System inform error message “Connect Fail" or ”Error” .

-Test case 2:

+ Description : Test layout for each device

+ Input : Open the screen of system in web device

+ Expected: Display successfully different layout for each device

+ Output: Display successfully different layout for each device

+ Exception: The UI does not meet the requirements

-Test case 3:

+ Description : Test Upload Image Functional

+ Input: Upload image have the size larger than 100 MB

+ Expected: The system informs error message “Size image exceeds size allow"

+ Output: The system informs error message “Size image exceeds size allow"

+ Exception: The system informs error message “Size image exceeds size allow"

-Test case 4:

+Description: Test function auto vote star for users

+Input: User can vote star for all questions just a click mouse

+Expected: User can vote star for all questions just a click mouse

+ Output: User can do it

+ Exception: System inform “You must be vote for each questions”.