



UTHM
Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER I
SESSION 2021/2022**

COURSE NAME : SOFTWARE VERIFICATION AND
VALIDATION

COURSE CODE : CIE 10403

PROGRAMME CODE : CIE

EXAMINATION DATE : JANUARY / FEBRUARY 2022

DURATION : 3 HOURS

INSTRUCTION : 1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION IS AN
ONLINE ASSESSMENT AND
CONDUCTED VIA **OPEN BOOK**

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

Q1 Propose a verification and validation technique for each of the following scenario. Justify and support your answer with the reasons and ways to implement the technique.

- (a) XYZ Sdn. Bhd. had been in charge of developing an inventory system for the Murmur Pharmacy Sdn. Bhd. The developers of the company were asked to make sure the software created, both useful and usable. The company's system analyst had conducted research prior to the construction of the system. The team has to know if the new features they are developing are delightful and easy to use.

(15 marks)

- (b) School Management System (SMS) is used by an educational institution to manage and integrate academic, communication and financial processes. This system integrates completely with Office 365. Using this single sign-on mechanism, students can access any Office 365 application from within the portal without the need for multiple logins. The SMS also integrated with Moodle. This integration will allow educators to give access to existing online material and curriculums without the need for migrating all these data to the SMS. In addition, SMS is integrated with email service providers and has been set up for email notifications for a variety of stakeholders - such as parents and students. The integration empowers the administrator to send emails to selected stakeholders.

(15 marks)

Q2 Evaluate UTHM main page interface at <https://www.uthm.edu.my/en/> based on **FOUR (4)** principles in Web Content Accessibility Guidelines (WCAG). Include the principle identifier and its description and the specific UTHM interface element in your review.

(20 marks)

Q3 Answer Q3(a) – Q3(d) based on the requirements shown in **Figure Q3**.

- (a) Plan testing levels for `VirtualArtViewer`. (20 marks)

- (b) Discuss how an regression testing can be conducted. (5 marks)

- (c) Propose **TWO (2)** testing types that you would plan. Justify your answer. (10marks)

- (d) Propose a software verification and validation technique that can be applied by testing team in `VirtualArtViewer` for each analysis, design and coding phases. (15 marks)

-END OF QUESTIONS-

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"Apogee Arts, Inc." is looking to significantly increase its customer base service by providing the VirtualArtViewer. The VirtualArtViewer will allow not only the "Apogee Arts, Inc." administrators to create, edit and store paintings and information about the paintings, but will also allow general users to retrieve their favorite paintings and all related relevant information. "Apogee Arts, Inc." strongly believes that the VirtualArtViewer has the potential to revolutionize the world of art by not only acting as a channel to expose the minds of people to a wide range of art but also providing a tool for them to have access to every bit of information available about every piece of art – hence the desire to aggressively move into this market quickly.

The VirtualArtViewer provides the following key features:

- Creating and storing paintings - A user acting as an administrator can create and enter information about paintings, artists, galleries and locations and store them on the server on "Apogee Arts, Inc."
- Viewing a painting information - Any user can use the application to retrieve and view detailed descriptions about paintings and any other information related to the painting.
- Printing a painting information - A user can conveniently print the information about any painting easily from his computer and carry the printout to any art gallery.

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Two of the most important risks posed by the development of the VirtualArtViewer are the following:

- Usability - The VirtualArtViewer must be as easy to use as possible, otherwise novice users will simply not purchase the program.
- Rapid development The schedule according to which the VirtualArtViewer will be developed is extremely aggressive to ensure that "Apogee Arts, Inc." is the first company with this novel art viewer application. Other qualities cannot be sacrificed as a result of this rapid development.
- Maintaining Link Consistency - Since the description and various kinds of information of paintings, artists, galleries and locations are linked, it is imperative that consistency of links is maintained as new information is added or existing information is changed or removed.

Although the contents of this document were thoroughly verified, it may still occur that some requirements are inconclusive or ambiguous. If it is so determined, it is requested that Paragon Software be contacted via e-mail at sgrish@ics.uci.edu to resolve the issue.

Source: Requirements Document for the VirtualArtViewer

Figure Q3: VirtualArtViewer requirements