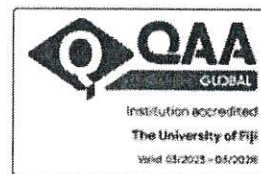




The University of Fiji
(An Entity of Arya Pratinidhi Sabha of Fiji)



SCHOOL OF SCIENCE AND TECHNOLOGY
Semester 2, 2024



FINAL EXAMINATION PAPER

ITC224: VIRTUALISATION AND ANIMATION

Important Instructions to Students:

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with pen) and **180 minutes (3 Hours) to complete this paper**.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. This paper contains two (2) sections A and B. All questions are compulsory to answer.
6. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
7. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

Examination Paper Content (Format):

<u>Section</u>	<u>Question</u>	<u>Content</u>	<u>Marks</u>	<u>Suggested Time</u>
A	1-25	Multiple Choice	25	45 minutes
B	1-22	Open Ended Questions	75	135 minutes
		TOTAL	100	180 Minutes

Write the question number and the letter which represents the **most** appropriate answer for each question in the answer booklet.

1. How would you describe morphing effect?
 - a. It's a picture enhancing technique
 - b. It's the process of picture manipulation
 - c. It's the process of transformation from one image to other
 - d. None of the above
2. What could be the best description of Key Frame?
 - a. They are in between frames
 - b. They are transition frames
 - c. They are starting and ending frames
 - d. None of the options
3. What is the "Solid Drawing" principle in animation concerned with?
 - a. Creating a 3D model of characters.
 - b. Giving characters a solid, three-dimensional appearance.
 - c. Emphasizing characters' emotions through exaggerated expressions.
 - d. Balancing characters on a flat surface.
4. Bhavish has created a website for his band, The Rock. One of his band members, Risha, suggests that users should be able to hear a short guitar melody every time the band's logo is clicked. She believes that sound can be an important part of any Web site. Which of the following is a way that sound can improve a site?
 - a. Sound can help create emotional impact
 - b. Sound can provide feedback to a user's action
 - c. Sound can add drama and excitement
 - d. All of the above
5. Which option best describes the term Rigging?
 - a. Its a process of creating skin
 - b. Its a process of creating face
 - c. Its a process of creating costumes
 - d. Its a process of creating a skeleton
6. The advantages of using a(n) _____ are that you can have an object move along any path, including a path that intersects itself, and you can easily change the shape of the path, allowing you to experiment with different motions.
 - a. motion guide
 - b. keyframe
 - c. bitmap
 - d. playhead
7. #000000 represents the color _____.
 - a. green
 - b. black
 - c. white
 - d. red

8. When using OpenToonz software what allows you to see through several frames at one time?
 - a. Layers
 - b. Onion Skin
 - c. Stop Motion Animation
 - d. Animation
9. What role can virtual machines play in 2D animation workflows?
 - a. Virtual machines are employed to automate character design.
 - b. Virtual machines can provide a controlled environment for testing animation software and scripts.
 - c. Virtual machines are used for creating virtual characters.
 - d. Virtual machines are primarily used for generating 3D animation sequences.
10. ____ graphics excel at sharp lines, smooth colors, and precise detail.
 - a. Bitmap
 - b. Vector
 - c. Indexed
 - d. Concatenated
11. What represents a different level of depth on which you place your drawings?
 - a. Frame
 - b. Canvas
 - c. Gif
 - d. Layer
12. ____ provide a way to organize a large movie that has several parts, such as a Web site.
 - a. Morphing
 - b. Tweening
 - c. Scenes
 - d. Animation
13. ____ are often the only effective way to convey an idea or emotion.
 - a. Sounds
 - b. Scenes
 - c. Navigation bars
 - d. Properties
14. You can apply timeline effects to ____ objects as well as graphic objects.
 - a. Tween
 - b. Layer
 - c. Effect
 - d. Text
15. Frame rates of ____ frames-per-second (fps) generally provide an acceptably smooth computer-based animation.
 - a. 2-5
 - b. 3-5
 - c. 10-12
 - d. 19-25

16. Anare had to review the steps of adding sound to the site. Which of the following is not one of those steps?
- Create a new layer
 - Import a sound file into a Flash movie
 - Revert the new layer to the most recent version of the saved frame
 - Drag the sound symbol to the new layer after selecting the desired frame
17. Turning on the _____ feature can help in positioning animated objects on the stage.
- Property inspector
 - keyframe
 - ActionScript
 - Onion Skin
18. What is the role of a storyboard in the animation production process?
- Designing the physical sets for animation scenes
 - Creating character models
 - Mapping out the sequence of scenes and shots in an animation
 - Applying motion capture technology
19. _____ marks the end of the change in the animation.
- Shapes
 - Ending of a key frame
 - Video formats
 - TestMovie
20. Which principle helps animators create realistic and natural movements by observing and mimicking real-life actions?
- Exaggeration
 - Timing and Spacing
 - Solid Drawing
 - Observation and Imitation
21. _____ layer(s) may reduce the clutter on the stage and make it easier to work with selected objects from the layer(s) that are visible.
- Locking
 - Inserting
 - Hiding
 - Removing
22. Simran asks Aniketh what the Pen tool is used for. To Simran's relief, Aniketh gave the correct answer. Which of the following answers did he give?
- Transform a gradient fill by adjusting size, direction, or center of fill
 - Draw lines and curves by creating a series of dots that are automatically connected
 - Draw straight lines
 - Fill enclosed areas with color

23. Which of the following is a part of the basic principles of animation?
- a. Editing
 - b. Animatics
 - c. Staging
 - d. None of the above
24. Which principle of animation is often used to make characters appear more lifelike and relatable to the audience?
- a. Squash and Stretch
 - b. Secondary Action
 - c. Solid Drawing
 - d. Appeal
25. How can virtualization technology improve collaboration in 2D animation projects?
- a. By creating virtual worlds for team meetings
 - b. By enabling real-time character design
 - c. By providing a shared virtual workspace for remote artists
 - d. By generating 3D prototypes for 2D animations

Answer ALL the questions from this section in the answer booklet provided.

1. What are arcs and why is it so important when doing 2D animation? (2 marks)
2. Discuss the advantage a vector graphic has over a bitmap graphic for 2D animation? (1 mark)
3. What is FFmpeg and what is the purpose of using it in OpenToonz. Explain properly. (2 marks)
4. Saving your work is very important. How do you save a new document in OpenToonz, and once it is saved, why should you continue to save on a regular basis? (2 marks)
5. Naomi is working on an animated short film using OpenToonz. The project involves multiple scenes with complex character movements. Reijeli has been tasked with managing the workflow to meet a tight deadline. However, Reijeli encounter issues with organizing layers and efficiently managing scene transitions in OpenToonz.
 - a. What steps can Reijeli take to better organize layers and scenes in OpenToonz to improve workflow efficiency? (2 marks)
 - b. How would Reijeli utilize OpenToonz's Xsheet and Timeline features to optimize her workflow when dealing with multiple characters and scene transitions? (2 marks)
 - c. If Reijeli notices performance slowdowns when working with large projects, what actions can she take to address this issue? (2 marks)
6. Explain what's illusion of movement and how is it created in an animation? (2 marks)
7. For Figure 1 shown below, thoroughly explain what the parts labeled A, B, C and D are? Name them and discuss what is the purpose of each and when and how each will be used. Your entire explanation should be in your own words. (2 marks)

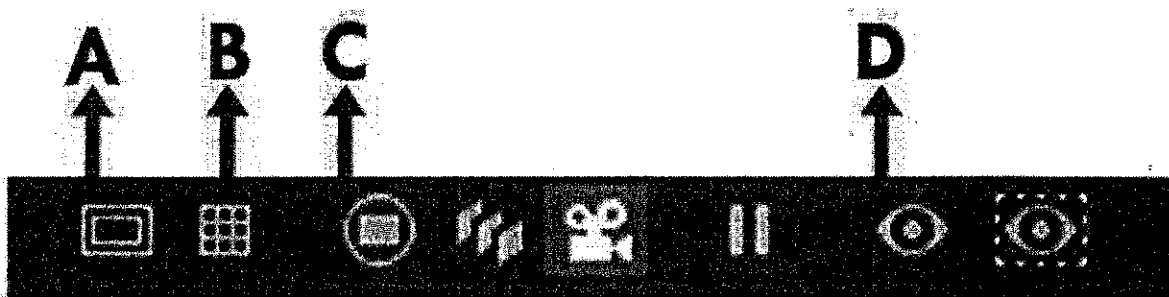


Figure 1

8. "Blinks have Meaning". As an animator what does this statement mean to you? Explain thoroughly with help of an example. *(2 marks)*
9. Once you draw an object, you can still change its stroke and fill. Explain how you can accomplish this with the Paint Bucket, Ink Bottle, and Eyedropper tools. *(2 marks)*
10. Filimoni has created a character design in OpenToonz for a new animation, but when he attempts to rig the character, the movements appear stiff, and joints are not bending naturally. The animation is supposed to feature fluid motion and lifelike gestures, but the current setup is causing delays in the production.
 - a. Why is Filimoni character's movement appearing stiff when rigging in OpenToonz, and what could be the common mistakes in rigging? *(2 marks)*
 - b. What tools or features in OpenToonz can Filimoni use to improve the rigging process for more fluid character movement? *(2 marks)*
 - c. How would Filimoni test and refine the rig to ensure it meets the animation's needs? *(2 marks)*
11. Thoroughly explain how you would create an animation using the Plastic tool. Use an example to explain your answer. Make sure to explain each step-in order of occurrence. *(2 marks)*
12. Use an example to explain how you would go about creating a scrolling background. *(2 marks)*
13. Lagilagi is animating a magical transformation scene in his OpenToonz project, which requires the integration of particle effects (e.g., sparkles, energy waves) along with traditional hand-drawn animation. The challenge is to blend these effects seamlessly without them looking disjointed or overpowering the main action.
 - a. What are the common challenges when integrating particle effects with hand-drawn animation in OpenToonz? *(2 marks)*
 - b. How can Lagilagi use OpenToonz's FX Schematic and particles features to create and control particle effects effectively? *(2 marks)*
 - c. What techniques can he apply to ensure that the particle effects enhance rather than distract from the main action? *(2 marks)*
14. When planning your animation what does the term "Spotlight Your Expressions" mean? Explain thoroughly. *(2 marks)*
15. Define the term virtualization and how does it relate to animation. *(2 marks)*
16. Explain the steps you would take to insert recorded audio in your animation. *(2 marks)*
17. What is Animation and what does it take to be an animator? Discuss thoroughly. *(2 marks)*

18. After completing a 2D animation project in OpenToonz, Shirti exports the final video, but the rendered output has issues such as incorrect frame rates, missing frames, or reduced image quality. The deadline is approaching, and these issues must be resolved quickly.
- What are the possible reasons for incorrect frame rates, missing frames, or reduced quality in the rendered output? *(2 marks)*
 - How would Shirti adjust the export settings in OpenToonz to ensure the correct frame rate and high-quality output? *(2 marks)*
 - If specific frames are missing or rendering incorrectly, what steps can Shirti take to fix these problems? *(2 marks)*
19. Simran is animating a bouncing ball in OpenToonz. Initially, the ball moves in a smooth arc, but it appears stiff and lacks dynamism. She wants the ball to have more weight and energy in its motion, particularly when it hits the ground and rebounds.
- Why does the ball appear stiff, and how does the principle of squash and stretch address this issue in animation? *(2 marks)*
 - How would Simran use OpenToonz's Xsheet and Timeline to implement squash and stretch during the ball's contact with the ground and in its arc? *(2 marks)*
 - How would Simran balance squash and stretch to ensure the ball maintains its volume without appearing too distorted? *(2 marks)*
20. Risha is animating a character throwing a ball in OpenToonz. The motion looks abrupt and unconvincing, and the action feels incomplete. The audience does not see any preparation before the throw, which lessens the impact of the throw itself.
- What is missing from the animation that makes the throw feel incomplete, and how does the principle of anticipation improve this action? *(2 marks)*
 - How would Risha apply anticipation in the character's throw using keyframes in OpenToonz? *(2 marks)*
 - What key elements should be emphasized to create an effective anticipation for this action? *(2 marks)*

21. Bhavish is animating a character jumping in excitement, but the movement looks too restrained and doesn't fully convey the emotion. The jump is small and lacks energy, failing to express the character's joyful reaction.
- Why does the jump appear underwhelming, and how can the principle of exaggeration help enhance this animation? (2 marks)
 - How would Bhavish apply exaggeration in OpenToonz to make the character's jump more expressive? (2 marks)
 - What elements of the jump should be exaggerated to effectively convey the character's excitement? (2 marks)
22. Aniketh has designed a character in OpenToonz, but when he animates them walking, they seem visually uninteresting and lack charm. The design is technically correct, but the character doesn't feel engaging or memorable on screen.
- Why does the character lack appeal, and how does the principle of appeal influence character animation? (2 marks)
 - What adjustments can Aniketh make to the character's design and animation to improve their appeal? (2 marks)
 - How can Aniketh use OpenToonz's tools to enhance the character's walk cycle, making it more engaging for the audience? (2 marks)

End of Exam

