Class VIII

Lesson 1 OpenShot Video Editor

1. Define Timeline and Play Head

Timeline – Area where video, audio, and image clips are arranged in sequence.
Playhead – Indicator showing the current position in the timeline.

2. Differentiate between Transition effect and Visual Effect

Transition Effect – Smooth change between two clips.
Visual Effect – Changes appearance of a clip (e.g., color, brightness).

3. Differentiate between ruler and zoom slider

Ruler – Shows time scale on the timeline.
Zoom Slider – Adjusts zoom level of the timeline view.

4. What is Openshot?

A free, open-source video editing software.

5. Write the name of the main components of the openshot interface.

Menu Bar, Toolbar, Project Files Area, Preview Window, Timeline.

6.What is the preview window?

Displays how the video will look when played.

7. What is timeline in Openshot?

Section where you arrange and edit clips in sequence.

8. What is a transition and how do you apply it?

Smooth change between clips; **Apply** – Drag a transition from Effects to overlap two clips.

9. Write down the steps for adding text to a video.

Click *Title* → Choose style → Type text → Save → Drag to timeline.

Lesson 2 Inkscape- Vector Designing

1. Define Blur, Opacity and Node

Blur – Softens edges of an object.
Opacity – Controls transparency of an object.
Node – Point that defines shape of a path.

2. Difference between Canvas and Document Page

Canvas – Entire working area in Inkscape.
Document Page – Printable area within the canvas.

3. Differnece between Artistic Text and Paragraph Text

Artistic Text – Single line of styled text.
Paragraph Text – Multi-line block of text.

4.Name two basic shapes that can be created in Inkscape.

Rectangle, Circle.

5. Which shortcut key is used to open the 'Fill and Stroke' dialog box ?

Shift + Ctrl + F

6. What is the function of the zoom tool?

Magnifies or reduces view of the canvas.

7. What is the default file format for saving documents in inkscape?

SVG.

8. What is Inkscape?

Free, open-source vector graphics editor.

9. How can you select an object in Inkscape?

Click it with *Select Tool*

10. Explain how to convert a line into an arc in Inkscape.

Convert Line to Arc – Select line → Switch to Node Tool → Click “Make Selected Segments Curved.”

Lesson 3 Emerging Technologies

1. Difference between virtual reality and augmented reality.

Virtual Reality – Fully computer-generated environment.
Augmented Reality – Adds digital elements to the real world.

2. What is a virtual Assistant?

AI program that performs tasks via voice/text commands.

3. For Which device was Alexa developed initially?

Initially for *Amazon Echo*.

4. What is the purpose of BCI?

Connects brain signals to external devices for control.

5. "Metaverse is a virtual world". Elaborate the statement.

A shared 3D virtual space for interaction, work, and play.

6. Explain about blockchain.

Secure digital ledger storing data in linked blocks.

7. What is RPA?

Robotic Process Automation; uses software bots to do repetitive tasks.

8. Explain the concept of 3D Printing.

Creating 3D objects by layering material from a digital design.

Lesson 4 MySQL

1. Differentiate between Data and Information.

Data – Raw facts.
Information – Processed, meaningful data.

2. What are the commands of DDL and DML?

DDL – CREATE, ALTER, DROP.
DML – SELECT, INSERT, UPDATE, DELETE.

3. Write the syntax to create a new table.

```
CREATE TABLE table_name (
  column1 datatype,
  column2 datatype
);
```

4. What are the components to RDBMS?

RDBMS Components – Tables, Fields, Records, Keys.

5. How can you create a new database in MYSQL?

```
CREATE DATABASE db_name;
```

6. Write about MySQL queries.

Commands to retrieve or modify data in MySQL.

7. Explain Relational Database management system (RDBMS).

Software that stores data in related tables with unique keys. Eg. MySQL, MS Access, etc.

Lesson 5 Networking and Digital Citizenship

1. Define the following : Client, Server, Switch and TCP/IP

Client – Computer that requests services.
Server – Provides services to clients.
Switch – Connects devices in a network.
TCP/IP – Protocols for communication over the internet.

2. Differentiate between the following :

LAN vs MAN –

LAN: small area network (e.g., building); MAN: covers a city.
Twisted Pair vs Coaxial – Twisted Pair: wires twisted, cheaper; Coaxial: single wire with shield, faster.
IMAP vs SMTP – IMAP: retrieves emails; SMTP: sends emails.

3. What is Communication?

Exchange of information between two or more devices.

4. How many types of networks are there? Name them.

Types of Networks – LAN, MAN, WAN, PAN

5. What is digital citizenship?

Responsible and safe use of technology and the internet.

6. What is a router?

Device that forwards data between networks.

7. What is the use of hub?

Connects multiple computers in a network; sends data to all.

8. Write about FTP.

File Transfer Protocol; used to upload/download files over internet.

9. Name the different types of topologies. Explain any one of them.

Topologies – Bus, Star, Ring, Mesh, Tree.
Star Topology – All devices connect to a central hub/switch.

10. Describe WAN.

WAN – Wide Area Network; connects computers across countries/continents.

11. Name the different types of wireless transmission media. Explain any one of them.

Wireless Media – Radio waves, Microwaves, Infrared, Satellite.
Example – Radio Waves: Used in Wi-Fi and Bluetooth.

12. What is ring topology? Explain briefly.

Ring Topology – Each device connects to two others, forming a closed loop. Data travels in one direction.

Chapter 6: Google Sites

1. Define: Google Sites and Panel

- **Google Sites**:
  Google Sites is a **free website-building tool by Google** used to create simple websites without coding.
- **Panel**:
  The **Panel** is the area in Google Sites that contains **tools and options** to design and edit a website.

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2. Write the steps to log in or create an account before using Google Sites.

Steps to log in or create an account:

1. Open a web browser
2. Go to **www.google.com**
3. Click on **Sign in**
4. Enter your **Gmail ID and password**
5. If you do not have an account, click **Create account**

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3. Write the names of the components of Google Sites.

The components of Google Sites are:

- **Header**
- **Pages**
- **Insert**
- **Themes**

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4. What is the use of Link in Google Sites?

A **link** is used to **connect one page to another webpage, document, or website**.

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5. What do you mean by Google Sites? Write its uses.

Google Sites is a tool used to **create websites easily**.

Uses of Google Sites:

- Creating school websites

- Creating project websites
- Sharing information online

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6. Explain three tabs of Panel.

The three tabs of the Panel are:

- **Insert** – Used to add text, images, links, and files
- **Pages** – Used to create and manage web pages
- **Themes** – Used to change the design and look of the website

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7. How do you publish your Google Sites website?

Steps to publish a Google Sites website:

1. Click on the **Publish** button
2. Enter the **web address**
3. Click on **Publish** again

Chapter 7: App Development – Thunkable

1. Define: Educational Apps and Communication Apps

- **Educational Apps**:
  Apps that are used for **learning and gaining knowledge**, such as study or quiz apps.
- **Communication Apps**:
  Apps that help people **communicate with each other** through messages, calls, or video.

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2. What do you mean by an app?

An **app (application)** is a **software program** designed to perform a specific task on a mobile device.

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3. Name the different types of apps.

The different types of apps are:

- **Native apps**
- **Web apps**
- **Hybrid apps**

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4. Write a short note on communication apps.

Communication apps are used to **send messages, make voice calls, and video calls**.
Examples include chat and video-calling apps.

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5. Name the areas of Component Designer window.

The Component Designer window has:

- **Palette**
- **Viewer**
- **Components**
- **Properties**

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6. What do you mean by hybrid apps? Explain.

Hybrid apps are apps that **combine features of both native apps and web apps**.
They can run on **multiple platforms** using the same code.

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7. What is the purpose of the Join block in Thunkable's Blocks Editor?

The **Join block** is used to **combine two or more text values** into a single text.

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8. What are the main parts of Blocks Editor?

The main parts of the Blocks Editor are:

- **Blocks Panel**
- **Workspace**
- **Component Blocks**
- **Built-in Blocks**

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9. Explain five components used to create an app.

Five commonly used components are:

- **Label** – Displays text on the screen
- **Button** – Performs an action when clicked
- **Text Input** – Allows the user to enter text
- **Image** – Displays pictures
- **Notifier** – Shows messages or alerts

Chapter 8

Python – Looping and Lists

1. Define `count()` function and `pop()` function.

- **`count()` function**:
  It is used to **count how many times an element appears** in a list.
- **`pop()` function**:
  It is used to **remove and return an element** from the list.
  By default, it removes the **last element**.

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2. Differentiate between `append()` function and `extend()` function.

- **`append()`**:
  Adds **one element** at the end of the list.
- **`extend()`**:
  Adds **multiple elements (another list)** to the end of the list.

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3. What do you mean by loop?

A **loop** is used to **repeat a set of instructions again and again** until a condition is satisfied.

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4. What is the use of replicating a list?

Replicating a list is used to **repeat the elements of a list multiple times** using the `*` operator.

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5. Explain `for` loop.

A **`for` loop** is used to **iterate over a sequence** such as a list or range and execute statements for each item.

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6. What is `while` loop? Write its syntax.

- A **`while` loop** repeats statements **as long as a condition is true**.

Syntax:

```
while condition:
    statements
```

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7. What are the different ways to create a list?

Lists can be created by:

- Using **square brackets `[]`**
- Using the **`list()` function**
- Using **range with list()**

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8. Write all the list built-in functions.

The list built-in functions taught in this chapter include:

- `append()`
- `extend()`
- `insert()`
- `remove()`
- `pop()`
- `count()`
- `sort()`
- `reverse()`

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9. Why do you use `del` keyword?

The **`del` keyword** is used to **delete an element or the entire list**.

Chapter 9: Data Science – An Introduction

1. Difference between structured data and unstructured data

- **Structured data**:
  Data that is **organized in rows and columns**, such as tables or spreadsheets.
- **Unstructured data**:
  Data that **does not have a fixed format**, such as images, videos, audio, and text messages.

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2. Name one application of data science in e-commerce.

Data science is used in e-commerce to **recommend products to customers** based on their shopping behavior.

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3. What role does machine learning play in data science?

Machine learning helps data science to **analyze data and make predictions automatically** without being programmed again and again.

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4. Who is a data scientist?

A **data scientist** is a person who **collects, analyzes, and interprets data** to help in decision-making.

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5. Describe the role of statistics in data science.

Statistics helps data science to **analyze data, find patterns, and draw conclusions** from large amounts of data.

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6. State any two advantages of data science.

Two advantages of data science are:

- It helps in **better decision-making**
- It helps to **predict future trends**

Chapter 10: Future Possibilities of AI

1. Differentiate between Machine Learning Engineer and Business Intelligence Developer

- **Machine Learning Engineer**:
  Designs and develops **AI models** that learn from data and make predictions.
- **Business Intelligence Developer**:
  Uses data to **create reports and dashboards** to help businesses make decisions.

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2. Explain the role of AI in research.

AI helps researchers to **analyze large amounts of data quickly**, find patterns, and make new discoveries.

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3. Explain the role of AI in transportation.

AI helps in transportation by **managing traffic, improving navigation, and supporting self-driving vehicles**.

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4. Write the career option in the field of Data Science.

One career option in Data Science is a **Data Scientist**, who analyzes data to find useful information.

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5. Write any two applications of Data Science.

Two applications of Data Science are:

- **Weather forecasting**
- **Online shopping recommendations**

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6. Discuss the role of AI in healthcare.

AI helps in healthcare by **detecting diseases, assisting doctors in diagnosis, and managing patient records**.

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7. How does AI contribute to modern military training?

AI helps in military training by **using simulations and virtual training systems** to train soldiers safely.

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8. List two future career opportunities and their respective roles in the field of AI systems.

- **AI Engineer**: Develops intelligent machines and AI-based systems.
- **Robotics Engineer**: Designs and programs robots to perform tasks automatically.