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TECHIE TOTS TEACHER'S HANDBOOK

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Dear Sir / Madam,

Welcome to the Teacher's Handbook for "Techie Tots" – an innovative IT textbook designed to equip students from Grades 1 to 8 with essential digital literacy skills. This handbook is designed to support teachers in delivering engaging and effective IT instruction by providing:

- Clear learning objectives for each grade level.
- Curriculum-aligned lesson plans and activities.
- Assessment strategies to measure student progress.
- Tips for integrating technology into classroom instruction.
- Access to our Learning Management System (LMS) platform.

We understand that each classroom is unique, and the resources provided in this handbook can be adapted to meet the specific needs of your students and school environment. By fostering curiosity, creativity, and critical thinking skills, we aim to empower students to become confident users and creators of technology.

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TECHIE TOTS

SCHEME OF EXAMINATION

TWO TERM SCHEME

BOOKS	TERM I	TERM II
BOOK 7	LESSONS 1, 2, 3,4	LESSONS 5, 6,7,8

THREE TERM SCHEME

BOOKS	TERM I	TERM II	TERM III
BOOK 7	LESSONS 1, 2, 3	LESSONS 4, 5, 6	LESSONS 7, 8

Note: Questions for each terminal examination cover only the portions prescribed for it.

General Objectives:

- To introduce students to the concept of computer networks and their importance in modern society.
- To familiarize students with different types of computer networks and their characteristics.
- To provide an understanding of network protocols and their role in facilitating communication between devices.
- To discuss the advantages and disadvantages of computer networks and their impact on various aspects of life.

Learning Outcomes:

- Students can define what a computer network is and explain its significance in various sectors such as education, business, and communication.
- Students can identify different types of computer networks including LANs, WANs, MANs, and PANs, and describe their respective functionalities and coverage areas.
- Students can explain the concept of network protocols and provide examples of commonly used protocols such as TCP/IP, HTTP, FTP, IMAP, SMTP, and POP3.
- Students can discuss the advantages and disadvantages of computer networking.
- Students can evaluate the impact of computer networks on productivity, accessibility, and overall efficiency in organizations.
- Students can recognize the importance of network security measures in protecting against malware infections and unauthorized access.

Methodology:

Aim: To engage students in understanding the fundamentals of computer networks and fostering critical thinking about their implications in society.

Strategy: Begin the lesson by introducing the concept of computer networks through real-life examples such as the internet, intranet, and extranet. Utilize multimedia resources such as videos and diagrams to illustrate the structure and functioning of different types of computer networks. Encourage class discussions and group activities to explore the advantages and disadvantages of computer networking. Demonstrate practical examples of network protocols and their role in enabling communication between devices.

Expected Skills achieved by the learners: Critical Thinking Skills, Problem-Solving Skills & Communication skills.

Lesson Activities:**A Fill in the blanks**

1. Internet
2. Network Protocol
3. Wired
4. Campus Area Network
5. Local Area Network

B Write T for True and F for False

1. F 2. T 3. F 4. T 5. F

C Match the following

1. US Defense 2. Entire City 3. CAN 4. FTP 5. Between Computers

D Expand the following

1. Post Office Protocol 3 2. Hyper Text Transfer Protocol 3. File Transfer Protocol
4. Internet Message Access Protocol 5. Local Area Network

E Fill the pyramid

1. Intranet 2. ARPANET 3. Online 4. Modem 5. HTML 6. LAN

F Identify the following networks

1. Personal Area Network 2. Local Area Network 3. Wide Area Network
4. Metropolitan Area Network 5. Campus Area Network

G Who am I?

1. Intranet 2. Extranet 3. Internet 4. ARPANET

H Answer the following

1. A computer network is a group of interconnected computers through cables, telephone lines, radio waves, satellites or infrared light beams. Each computer in a network is called a Node
2. File Transfer Protocol is used to transfer a file from one system to another, under the command of FTP user. Typically, FTP is used interactively by an online user.
3. Local Area Network (LAN) is a computer network covering a small physical area such as home, office, school, airport, hospital etc. Where as Wide Area Network (WAN) spans a wide geographical area such as cities, countries, continents or even the whole of the world.
4. Internet is a global communication accessed through the Web. Where as Intranet is the shared content accessed by members within a single organization.
5. The advantages of computer network are: Higher information security, Easy sharing of files, Faster resources sharing, Enhanced data reliability etc.
6. Network protocol is a set of rules which is used by computers to communicate with each other across a network.
7. Disadvantages of computer network are : Network setup costs, Malware infection, Impact on productivity, Expert assistance is required, Health issues etc.

General Objectives:

- To introduce students to the concept of lists, tables, and forms in HTML .
- To enable students to understand the structure and usage of lists, tables, and forms in web development.

Learning Outcomes:

- Students can identify and differentiate between different types of lists in HTML, including unordered lists, ordered lists, and definition lists.
- Students can create and manipulate nested lists in HTML to organize and present information effectively.
- Students can construct tables in HTML for displaying tabular data, using appropriate tags and attributes.
- Students can understand the purpose and functionality of HTML forms in capturing user input on web pages.
- Students can implement basic form elements such as text fields, checkboxes, radio buttons, and submit buttons in HTML.

Methodology:

Aim: To facilitate student learning and understanding of programming concepts through a combination of theoretical explanations and practical examples.

Strategy: Begin by explaining the importance of lists in structuring content on web pages. Introduce different types of lists (unordered, ordered, and definition lists) and their respective HTML tags. Use live coding or pre-prepared HTML files to demonstrate the creation of various types of lists. Encourage students to follow along and experiment with different list structures. Divide the class into small groups and assign each group a task to create a nested list representing a hierarchical structure (e.g., a menu or a directory).

Expected Skills achieved by the learners: Creativity Skills, Problem-solving skills & Communication Skills.

Lesson Activities:

A Fill in the blanks

1. Anchor
2. Radio button
3. Nested List
4. <TH> tag
5. Border colour light

B Write T for True and F for False

1. F
2. T
3. F
4. F
5. T

C Match the following

1.
2.
3. <DL>
4. <TD>
5. <TR>
6. <A>
5. Email linking

D Write the Syntax of the following

1. <form></form>
2. Unordered list: <UL TYPE="DISC"/>"CIRCLE"/>"SQUARE">
3.

4.
5. <td colspan="number">
6. <OL TYPE="1"/>"A"/>"a"/>"I"/>"I" START="VALUE">

E Multiple choice questions

1. Anchor
2.
3. Hyperlinks
4.

5. Cellspacing

F Answer the Following

1. List are used to group related pieces of information together. There are three different types of list, they are

- * - Unordered list: An unordered list is used when the items are to be displayed in any particular sequence.
 - * - Ordered list: Ordered list specifies items in sequential, numerical order.
 - * <DL> - Definition list: A definition list is a list of items, with description of each item.
2. The <TH> tag defines a header cell in an HTML table. Whereas <TD> tag stands for table cell, which defines standard cell in an html table.
 3. COLSPAN: Table cells can span across more than one column or row. Its attributes specifies width of the cell in terms of number of columns used when a cell occupies more than one column. ROWSPAN: It sets how many rows a cell spans. The ROWSPAN attribute specifies the number of rows a cell should span. It decides the height of the cell in terms of number of rows used when a cell occupies more than one row.
 4. Forms are used to accept input from a user. A form includes checkboxes, radio buttons lists etc.
 5. External linking, Internal linking and Email linking are the types of hyperlinks.

Assessment - 1

(Based on chapters 1 and 2)

A Fill in the blanks

1. CAN 2. Nested list 3. Anchor tag 4. Node

B Write T for True and F for False

1. T 2. T 3. T 4. F

C Multiple choice questions

1. PAN 2. href 3. Form

D Expand the following

1. Internet Message Access 2. Personal Area Network 3. File Transfer Protocol

E Answer the following questions

1. Network protocol is a set of rules which is used by computers to communicate with each other across a network.
2. Checkbox is an html element used to let a user select one or more options.

General Objectives:

- To introduce students to the concept of mobile apps and their significance in today's technological landscape.
- To familiarize students with the features and categories of mobile apps.
- To provide students with an overview of the process of developing mobile apps.

Learning Outcomes:

- Students can identify the features of mobile apps and their importance in daily life.

- Students can categorize different types of mobile apps based on their functionalities.
- Students can explain the basic process of developing a mobile app using tools like App Inventor.

Methodology:

Aim: To introduce students to the world of mobile apps and equip them with basic knowledge about their features, categories, and development process.

Strategy: The lesson will be delivered through a combination of lecture-based instruction, interactive discussions, and hands-on activities. Visual aids such as diagrams and examples will be used to enhance understanding.

Expected Skills achieved by the learners: Critical Thinking, Digital Literacy & Practical Skills.

Lesson Activities:

A Fill in the blanks

1. Productivity 2. Native and Web based 3. 4. Gaming 5. Design view

B Multiple choice questions

1. Apple 2. Scratch 3. Native 4. Component 5. App Store

C Match the following

1. Native Apps 2. OLX 3. PhotoMath 4. Uber 5. Skype

D Write T for True and F for False

1. F 2. T 3. F 4. F

E Answer the following

1. Native apps are apps which built specially for a mobile devices operating system.
2. View pane is the white area of the right of the palette, where we can view and arrange added components. Palette pane is on the left of the palette from where we can select components.
3. Hybrid apps are a mix of native and web based apps. They are made support to web and native technologies across multiple platforms. They are developed using softwares like HTML, CSS, Java Script and J Query etc.
4. Click on the Play Store icon on the screen. Type the name of the app you want to install in the Search box. Click on the app you want to install. Click on the Install option.
5. Web apps are application software that runs in a web browser. Web apps are actually web application which gives a user with experience similar to native apps. OLX, Flip cart, Amazon etc are some examples of web apps.

General Objectives:

- To introduce students to the basics of Microsoft Excel and its applications.
- To familiarize students with the interface, functions, and features of MS Excel.
- To enable students to perform basic calculations, data organization, and analysis using MS Excel.

Learning Outcomes:

- Students can navigate through Microsoft Excel interface and understand its basic functions.
- Students can enter and edit data in rows and columns within Excel worksheets.
- Students can select and manipulate cells, columns, and rows effectively.
- Students can understand and apply basic formulas for calculations in MS Excel.
- Students can utilize operators in MS Excel for performing arithmetic, logical and text operations.
- Students can perform data validation to restrict input within specific ranges or criteria.

Methodology:

Aim: To provide students with a comprehensive understanding of Microsoft Excel and its applications.

Strategy: The lesson will be conducted using a combination of theoretical explanations, practical demonstrations, and hands-on activities.

Expected Skills achieved by the learners: Cognitive Skills, Technological skills and Practical skills.

Lesson Activities:

A Fill in the blanks

1. Workbook
2. Home
3. Unmerge Cells
4. Column
5. Ctrl+;
6. Flash Fill
7. Cell Pointer
8. Numeric

B Multiple choice questions

1. AutoFill
2. Merging
3. Three
4. Relational
5. Data
6. Ctrl+Shift+:

C Match the following

1. <=
2. &
3. OR
4. Paste
5. Worksheet

D Write T for True and F for False

1. F
2. T
3. F
4. F
5. T
6. T

E Write the use of following shortcut key

1. To select entire row
2. Navigates sheets upward
3. Navigates sheets downward
4. To insert current time in a cell
5. To insert current date in a cell
6. To select entire column

F Answer the following

1. All expressions are evaluated from left to right. BODMAS rule, the brackets have to be solved first followed by powers or roots (ie of), then Division, Multiplication, Addition, and at the end Subtraction.
2. AutoFill is the easiest method to fill data in cells automatically. Flash Fill is a feature that fills the data in cells by picking up the pattern set.
3. Text Formula, Numeric formula and Logical formula.
4. Data and information arranged in rows and columns is known as Worksheets .One or more worksheet together called a workbook.
5. 1.G20 2.H50

SEMESTER - 1

(Based on chapters 1, 2, 3 and 4)

A Fill in the blanks

1. LAN 2. Home 3. App Inventor 4. Nested list 5. Wired 6. Numeric

B Multiple choice questions

1. Three 2.
 3. Scratch 4. Ctrl+Shift+: 5. Play store

C Match the following

1. Skype 2. FTP 3. 4. <DL> 5. return logical result

D Write T for True and F for False

1. T 2. F 3. F 4. F 5. F 6. F

E Answer the following

1. Native apps are apps which built specially for a mobile devices operating system.
2. The <TH> tag defines the header cell in an HTML table whereas <TD> tag stands for a table cell which defines standard cell in an HTML table.
3. The advantages of computer network are: Higher information security, Easy sharing of files, Faster resources sharing, Enhanced data reliability etc.
4. Data and information arranged in rows and columns is known as Worksheets .One or more worksheet together called a workbook.
5. Forms are used to accept input from a user. A form includes checkboxes, radio buttons lists etc.
6. Web apps are application software that runs in a web browser. Web apps are actually web application which gives a user with experience similar to native apps. OLX, Flipkart, Amazon etc are some examples of web apps.

TT- VII

5

FUNCTIONS IN MS EXCEL

General Objectives:

- To familiarize students with the concept of functions in MS Excel.
- To enable students to understand the various uses of functions in MS Excel.
- To introduce students to the Function Wizard in MS Excel.

Learning Outcomes:

- Students can understand the concept of functions in MS Excel.
- Students can identify and utilize different functions in MS Excel for simple and complex calculations.
- Students can demonstrate the ability to use the Function Wizard to insert and apply functions accurately.

Methodology:

Aim: To provide students with a comprehensive understanding of functions in MS Excel and how

to use them effectively.

Strategy: The lesson will employ a combination of lectures, demonstrations, hands-on exercises, and interactive sessions to engage students in learning about functions in MS Excel.

Expected Skills achieved by the learners: Practical skills, Critical Thinking skills and Problem-Solving Skills.

Lesson Activities:

A Fill in the blanks

1. Complex
2. Syntax
3. SQRT(Number)
4. Logical
5. Function Wizard
6. Mathematical

B Write T for True and F for False

1. F
2. T
3. T
4. F
5. T
6. T

C Multiple choice questions

1. Max()
2. Min
3. POWER
4. COUNT

D Match the following

1. Number of cells with in a range
2. Add values in a specified criteria
3. Check more than one condition
4. To find length of a string
5. To find factorial of a number

E Answer the following

1. The values inside the brackets in a formula are called arguments. Arguments can be numbers, text, logical values, array, cell references, constants, formulas or other functions
2. A POWER in Excel function that computes and returns the result of a number raised to a power. *Syntax:* =POWER (Number, power) Example : POWER (5,3) returns 125. 5^3 means 5 to the power 3 is equal to 125.
3. A set of rules for doing something in an orderly manner is called syntax.
4. Example of MAX: =MAX(5, 13, 3, 7, 6) will return 13.
Example of MIN: =MIN(4, 7, 6, 2, 9) will return 2.
5. Date and time functions are used to display the date or time in a cell. It can also make some calculations.
 - * TODAY *Syntax:*=TODAY()
 - * DAY360("2024-01-01", "2024-06-01")
6. SUMIF function adds the values in cells specified by a given condition/criteria. It can add the number that meet the given condition or you can make the sum range of cells or a column with respect to the data in another column.

General Objectives:

- To introduce students to Adobe Animate and its basic functionalities.
- To familiarize students with the tools available in Adobe Animate.
- To teach students how to open, save, and close files in Adobe Animate.

Learning Outcomes:

- Students can identify the purpose of Adobe Animate and its role in creating animations.
- Students can navigate and use the different tools available in Adobe Animate.
- Students can demonstrate the process of opening, saving, and closing files in Adobe Animate.

Methodology:

Aim: To provide students with a foundational understanding of Adobe Animate and its essential features.

Strategy: The lesson will employ a combination of theoretical explanations, demonstrations, and hands-on practice to ensure comprehension and practical application of Adobe Animate.

Expected Skills achieved by the learners: Technical Skills, Creativity, Digital Literacy Skills.

Lesson Activities:**A Fill in the blanks**

1. Zoom
2. Adobe Animate
3. Rectangular
4. Free transformation
5. Current Scene
6. File
7. Animation
8. Four
9. Layers

B Multiple choice questions

1. Brush Tool
2. Hand Tool
3. Ctrl+G
4. Pen Tool
5. Library Tool

C Match the following

1. Menu Bar
2. Work area
3. Timeline
4. Library
5. Tool Panel
6. Stage

D Answer the following

1. Animation is a method by which a sequence of still figures are manipulated to appear as moving objects.
2. Lasso Tool is used to select an object or a part of an object by drawing selection outline around it. Selection tool is used to select an object and to move them.
3. Brush tool is used to create brush like strokes while drawing or painting. Fluid brush tool works like brush tool but does not smoothen the lines.
4. The Tool Area, View Area, Color Area and Option Area are the four division of Tool Panel.
5. Timeline panel determines the order in which your frames and layers appear and how long each frame will stay on stage. It organises and controls the contents in layers and frames.

Assessment - 2
(Based on chapters 5 and 6)

A Fill in the blanks

1. Rectangular 2. Function Wizard 3. File 4. Mathematical

B Write T for True and F for False

1. F 2. F 3. T 4. F

C Multiple choice questions

1. MIN 2. Library tab

D Answer the following

1. Animation is a method by which a sequence of still figures are manipulated to appear as moving objects.
2. A set of rules for doing something in an orderly manner is called syntax.
3. Brush tool is used to create brush like strokes while drawing or painting. Fluid brush tool works like brush tool but does not smoothen the lines.

TT-VII

7

MORE ON PYTHON

General Objectives:

- To provide an in-depth understanding of data types in Python.
- To familiarize students with Python input and output mechanisms.
- To introduce the concept of constants and their usage in Python programming.

Learning Outcomes:

- Define and differentiate between different data types in Python, such as integers, floats, and strings.
- Demonstrate the ability to use Python's built-in functions to determine the data type of a given literal.
- Utilize Python's input () function to receive user input and store it in variables for further processing.
- Explain the concept of constants and identify their naming conventions in Python programming.
- Apply escape sequences in Python to handle special characters in strings for better formatting and display.

Methodology:

Aim: To engage students actively in learning about data types, input/output mechanisms, and constants in Python through a combination of theoretical explanations, interactive examples, and hands-on activities.

Strategy: Begin by explaining the concept of data types and their significance in programming. Provide examples of different data types and discuss their characteristics. Use Python's

interactive shell to demonstrate various data types, literals, and their corresponding functions (e.g., type()). Encourage students to follow along and experiment with different literals. Introduce Python's input() function and explain how it can be used to receive user input.

Expected Skills achieved by the learners: Problem Solving, Computational Thinking and Creativity Skills.

Lesson Activities:

A Fill in the blanks

1. Type()
2. Constant's
3. input()
4. Lower case
5. Variables
6. Comments
7. backslash (\)

B Write T for True and F for False

1. T
2. F
3. F
4. T
5. T

C Answer the Following

1. Constants are variables whose values do not change during the lifetime of the program.

The upper case letters are used to separate variable from an ordinary variable.

```
>>>
>>> MY_CONST = 100 # a constant
>>>
```

You are even allowed to change the value of MY_CONST constant by assigning new value to it as follows:

```
>>>
>>> MY_CONST = "new value"
```

2. Escape sequences are set of special characters used to print characters which can't be typed directly using the keyboard. Each escape sequences starts with a backslash character. The following are some common escape sequences.

\n :- Newline \' :- Single quote \b :- ASCII Backspace \t :- Tab
\": - Double quote \f :- ASCII Form feed \\ :- Backslash \a :- ASCII Bell
\r :- ASCII Carriage Return \v :- ASCII Vertical Tab

3. The following base data types are used in python.

- a) Integer :- 12, -999, 0, 3434, etc
- b) Real numbers :- 4.5, -25.4211, 0.00003 etc
- c) Characters :- 'hello', '100', '\$##\$', etc

4. 1 Can be of any size.

2 Have allowed characters, which are a-z, A-Z, 0-9 and underscore (_)

3 Should begin with an alphabet or underscore.

4 Should not be a keyword.

General Objectives:

- Introduce students to the concept of AI project development and its importance in modern technology.
- Familiarize students with the various steps involved in the AI project cycle.
- Provide an understanding of the classification process and its significance in AI projects.

Learning Outcomes:

- Students can explain the overview of AI project development.
- Students can identify and understand the different steps involved in the AI project cycle: Problem Scoping, Data Acquisition, Data Exploration, Modelling, and Evaluation.
- Students can define the concept of classification and its role in AI projects.

Methodology:

Aim: To introduce students to the systematic process of AI project development and the AI project cycle. To provide a clear understanding of the steps involved in the AI project cycle and the concept of classification.

Strategy: Begin the lesson by engaging students with a brief discussion on the importance of AI in modern technology and its applications. Introduce the concept of the AI project cycle and its five steps: Problem Scoping, Data Acquisition, Data Exploration, Modelling, and Evaluation. Provide examples and illustrations to help students grasp each step effectively. Use real-life scenarios and case studies to demonstrate the practical application of the AI project cycle. Incorporate interactive activities such as group discussions, brainstorming sessions, and hands-on exercises to encourage active participation and reinforce learning.

Expected Skills achieved by the learners: Problem-solving skills, Communication skills and Critical Thinking Skills.

Lesson Activities:**A Fill in the blanks**

1. AI Project cycle
2. Data Moulding
3. Problem scoping
4. Data acquisition

B Write T for True and F for False

1. F
2. T
3. T
4. F
5. F

C Answer the Following

1. Problem Scoping is the initial step in an AI project where the problem to be solved is identified. Data Acquisition follows, involving the collection of relevant data. Data Exploration is then conducted to extract useful information from the acquired data. Next, a model is created using the collected data, capable of learning and making decisions. Finally, an evaluation of the model's predictions is crucial to determine its overall performance.

2. To implement the data acquisition step of security problem, we can follow the below mentioned pointers.
 - a) Collect the details of staff and store it in a database along with the images.
 - b) Store the biometric data for authorized users.
 - c) Collect data about the bank premises, including the images.
 - d) Stream the video footage of the locker visitors.
 - e) Store the images of suspected criminals.
3. Data Visualization is a core part of this Data Exploration . It is nothing but the graphical representation of both information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns within that data.
4. Model is a copy of something usually smaller than the original object.
5. 1) Data Collection 2) Data Preparation 3) Feature Extraction 4) Model Selection
5) Model Training 6) Model Evaluation 7) Model Deployment 8) Monitoring and Maintenance

Semester - 2

(Based on chapters 5, 6, 7 and 8)

A Fill in the blanks

1. Zoom tool 2.SQRT 3. Lower case 4. File 5. Select 5. Comment 6. Four

B Multiple Choice Question

1. Hand Tool 2. Max() 3. AI Project Cycle 4. Library tab

C Match the following

1. Stage 2. To find length of a string 3. Tool panel 4. To find factorial of a number 5. Work area

D Write T for True and F for False

1. T 2. T 3. T 4. T 5. F

E Answer the following

1. 1) Data Collection 2) Data Preparation 3) Feature Extraction 4) Model Selection
5) Model Training 6) Model Evaluation 7) Model Deployment 8) Monitoring and Maintenance
2. A set of rules for doing something in an orderly manner is called syntax.
3. Brush tool is used to create brush like strokes while drawing or painting. Fluid brush tool works like brush tool but does not smoothen the lines.
4. 1 Can be of any size.
2 Have allowed characters, which are a-z, A-Z, 0-9 and underscore ()
3 Should begin with an alphabet or underscore.
4 Should not be a keyword.

5. Problem Scoping is the initial step in an AI project where the problem to be solved is identified. Data Acquisition follows, involving the collection of relevant data. Data Exploration is then conducted to extract useful information from the acquired data. Next, a model is created using the collected data, capable of learning and making decisions. Finally, an evaluation of the model's predictions is crucial to determine its overall performance.
6. Example of MAX: =MAX(5, 13, 3, 7, 6) will return 13.
Example of MIN: =MIN(4, 7, 6, 2, 9) will return 2.