



AI & IT Olympiad Syllabus

CLASS-VI

1. Digital World – Fundamentals of Computer

- Evolution of Computers
- Categories of Computers
- Other Types of Computers
- Devices of a Computer

2. Digital World – Formulas and Functions in Excel 2016

- Data Types in Excel 2016
- Operators in Excel 2016
- Operators Precedence
- Ways to Enter a Formula in Excel 2016
- Cell Range
- Cell Reference
- Functions

3. Digital World – Charts in Excel 2016

- Charts
- Advantages of Charts
- Components of a Chart
- Types of Charts
- Creating a Chart
- Changing Chart Type
- Setting the Data Range
- Moving and Resizing the Chart
- Changing Background of the Chart

4. Digital World – Krita: An Introduction

- Features of Krita
- Downloading and Installing Krita
- Starting Krita
- Components of the Krita Window
- Creating Graphics and Shapes
- Opening Krita Files
- Closing Krita Files

5. Cyber World – Learn HTML5 and CSS3

- What is HTML?
- History of HTML
- HTML Editor
- Features of HTML5
- Understanding HTML5 Tags
- Basic HTML Tags
- Attributes
- HTML Comments
- Rules for Writing HTML Codes
- Structure of an HTML Document
- Creating and Saving an HTML Document
- Displaying a Webpage in a Web Browser
- <P> Tag
-
 Tag
- <HN> Tag
- <HR> Tag
- Styling HTML Documents with Cascading Style

Sheets

- Use of Inline CSS with HTML5 Tags

6. Formatting a Webpage

- Text Properties
- Background Properties
- Font Properties
- Margin Properties

7. Introduction to Mobile Apps

- What are Apps?
- iOS and Android
- Features of Mobile Apps
- Types of Mobile Apps
- Categories of Apps

8. Internet Services

- Services on the Internet
- Safety on Internet

9. Computational Thinking – Algorithm, Flowchart and Mind Maps

- Algorithm
- Writing an Algorithm
- Flowchart
- Drawing a Flowchart
- Brainstorming
- Mind Maps
- Computer Languages
- Language Translator

10. Coding World – Introduction to Python

- Python
- Getting Started with Python
- Programming Modes in Python
- Input and Output
- Variables in Python
- Data Types in Python
- Comments in Python
- Operators in Python
- Saving a Python Program
- Executing a Python Program
- Opening a Saved Python Program
- Exiting Python Idle
- Basic Python Programs

11. Artificial Intelligence – Intelligence and AI Approaches

- Intelligence
- Types of Intelligence
- Exploring Intelligence
- AI Approach



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CLASS-VII

1. Digital World – Number System

- What is a Number System?
- Data Representation
- Conversion of Decimal to Binary
- Conversion of Binary to Decimal
- Operations on Binary Numbers

2. Advanced Features of Excel

- SUM()
- IF()
- Sorting Data in Excel
- Filtering Data in Excel
- Conditional Formatting

3. More on Krita

- Manipulating the Canvas
- Different Views in Krita
- Opening an Image in Krita
- Selection Tool
- Move Tool
- Crop Tool
- Gradient Tool
- Creating and Managing Layers in Krita
- Creating a Project in Krita

4. Cyber World – Lists and Tables in HTML

- Lists
- Nested List
- Tables
- Styling Tables using CSS

5. Images, Links and Forms in HTML5

- Images in HTML
- Images with CSS
- Hyperlink in HTML
- Hyperlink with CSS
- Embedding Audio and Video
- Frames and iFrames
- iFrames and CSS
- Forms in HTML

6. Developing Mobile Apps

- Installing an App from Google Play Store
- Removing an App
- Developing an App

7. Google Apps

- Google Workspace
- How are Google Apps Helpful?
- Commonly Used Google Apps
- Other Google Apps
- Apps for Everyday Use

8. Cyber Security

- What is Cyber Security?
- Need for Cyber Security
- Computer Ethics
- Common Cyber Security Measures
- Indian Laws and Government Initiatives

9. Computational Thinking – Algorithmic Intelligence

- Informal Processing
- Conditions in a Program

10. Coding World – Tokens and Data Types in Python



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CLASS-VIII

1. Digital World – Networking Concepts

- Computer Network
- Need of Computer Networking
- Components of a Communication System
- Requirements for Computer Networking
- Network Terminologies
- Types of Networks
- Network Architecture
- Topologies
- Networking Transmission Media
- Protocols

2. Animation in Krita

- Krita
- Creating a Simple Animation

3. Cyber World – Dynamic Web Pages in HTML

- JavaScript – A Scripting Language
- Features of JavaScript
- Using JavaScript
- Creating a Web Page with Internal JavaScript
- Creating a Web Page with External JavaScript
- Statements in JavaScript
- Input and Output in JavaScript
- Basic JavaScript Programs

4. Latest IT Trends

- E-commerce
- Electronic Funds Transfer
- Blockchain
- Artificial Intelligence
- Augmented Reality and Virtual Reality
- Internet of Things
- 3D Printing
- RPA (Robotic Process Automation)

5. Cloud Computing

- What is Cloud Computing?
- How does Cloud Computing Work?
- Cloud Storage Service Providers
- Storing Data using Cloud Computing
- Accessing OneDrive using App
- Accessing OneDrive using Web Browser
- Creating Files or Folders on OneDrive
- Uploading File or Folder on OneDrive
- Sharing Files
- Files Shared with You
- Types of Cloud Services

6. Computational Thinking – Algorithmic Intelligence

- Multiple Conditions in a Program
- Loops in a Program

7. Coding World – Control Structures in Python

- Control Structure
- Sequential Statements
- Selection Statements
- Iterative Statements
- Jump Statements
- Basic Python Programs

8. Functions, String and List in Python

- Introduction to Python Functions
- String
- List
- Python Programs using Functions, Strings and Lists

9. Artificial Intelligence and Its Domains

- Categories of Artificial Intelligence
- Advantages of Artificial Intelligence
- Risks and Barriers of Artificial Intelligence
- Domains of Artificial Intelligence

10. Fields of Artificial Intelligence

- Most Common Fields which Use AI
- AI in Apps
- Concept of Smart Living

11. Introduction to SDGs and Data Science

- Challenges before Sustainable Development
- Sustainable Development Goals (SDGs)
- Data Science
- Why Data Science?
- Role of a Data Scientist
- Solving Problems with Data Science
- Tools for Data Science
- AI and Data Science



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CLASS-IX

PART A – Employability Skills

Unit 1: Communication Skills-II

- Communication Skills
- Effective Communication
- Communication in Everyday and Professional Situations

Unit 2: Self-Management Skills-II

- Self-Management
- Personal Effectiveness
- Goal Setting
- Time and Stress Management

Unit 3: ICT Skills-II

- Information and Communication Technology
- ICT Tools
- Digital Applications
- Responsible Use of ICT

Unit 4: Entrepreneurial Skills-II

- Entrepreneurship
- Entrepreneurial Qualities
- Entrepreneurial Opportunities
- Basic Business Concepts

Unit 5: Green Skills-II

- Green Economy
- Sustainable Development
- Environmental Responsibility
- Green Practices

PART B – Subject-Specific Skills

Unit 1: Introduction to IT and ITes Industry

- Applications of IT
- IT and IT-enabled Services
- Role of IT in Different Fields

Unit 2: Data Entry and Keyboarding Skills

- Using Keyboard and Mouse for Data Entry
- Using Typing Software
- Keyboarding Skills
- Typing Accuracy and Speed

Unit 3: Digital Documentation

- Introduction to Word Processor
- Applying Editing Features
- Applying Formatting Features
- Working with Tables
- Using Print Options
- Understanding and Applying Mail Merge

Unit 4: Electronic Spreadsheet

- Creating a Spreadsheet
- Applying Formula and Functions
- Formatting Data in the Spreadsheet
- Understanding and Applying Referencing
- Charts in Spreadsheet

Unit 5: Digital Presentation

- Understanding Features of an Effective Presentation
- Creating a Presentation
- Working with Slides
- Formatting Text and Applying Animations
- Creating and Using Tables
- Inserting and Formatting Images in Presentation
- Working with Slide Master

Practical Skills

- Practical Work
- Viva Voce
- Project Work
- Digital Documentation
- Electronic Spreadsheet
- Digital Presentation



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CLASS-X

PART A – Employability Skills

Unit 1: Communication Skills-II

- Communication Skills
- Effective Communication
- Verbal and Non-Verbal Communication

Unit 2: Self-Management Skills-II

- Self-Management
- Goal Setting
- Stress Management
- Self-Motivation

Unit 3: ICT Skills-II

- ICT Tools
- Digital Applications
- Digital Security
- Responsible Use of Technology

Unit 4: Entrepreneurial Skills-II

- Entrepreneurship
- Entrepreneurial Qualities
- Business Opportunities
- Entrepreneurial Process

Unit 5: Green Skills-II

- Sustainable Development
- Green Economy
- Environmental Protection
- Sustainable Practices

PART B – Subject-Specific Skills

Unit 1: Digital Documentation – Advanced

Using Libre Office Writer

- Advanced Digital Documentation
- Advanced Formatting
- Styles and Formatting
- Working with Tables
- Advanced Document Features
- Document Management
- Creating Professional Documents

Unit 2: Electronic Spreadsheet – Advanced

Using Libre Office Calc

- Advanced Spreadsheet Concepts
- Formulas and Functions
- Advanced Data Handling
- Spreadsheet Formatting
- Data Analysis
- Charts and Graphs
- Cell Referencing
- Working with Spreadsheet Data

Unit 3: Database Management System

Using Libre Office Base

- Introduction to Database Management
- Database Concepts
- Tables
- Fields and Records
- Creating and Managing Databases
- Forms
- Queries
- Reports
- Using Libre Office Base

Unit 4: Maintain Healthy, Safe and Secure Working Environment

- Workplace Health and Safety
- Safe Working Practices
- Ergonomics
- Computer-Related Health Issues
- Workplace Security
- Digital and Data Security
- Safe and Secure Working Environment

PART C – Practical Skills

- Digital Documentation (Advanced) using LibreOffice Writer
- Electronic Spreadsheet (Advanced) using LibreOffice Calc
- Database Management System using LibreOffice Base
- Viva Voce

PART D – Project & Portfolio

- Practical Work
- Field Visit / Real-World Case Study
- Interdisciplinary Real-World Case Study
- Data Collection and Presentation
- Portfolio / Practical File
- Practical Problems using Writer, Calc and Base

BrainBox Olympiad Focus

For BrainBox Olympiad, these syllabi can be converted into competency-based questions emphasizing:

- Digital Literacy
- Computer Fundamentals
- Application of IT
- Computational Thinking
- Coding & Programming
- Problem Solving
- Cyber Safety & Digital Citizenship
- Artificial Intelligence
- Data Science
- Emerging Technologies
- Application-Based & Situational Questions
- Logical and Analytical Thinking

Recommended BrainBox Question Distribution

Classes	Questions	Maximum Marks
VI–VIII	50	50
IX–X	60	60

For BrainBox, I would recommend not testing lengthy software-operation procedures (such as where to click a particular menu) heavily. Instead, the Olympiad should test conceptual understanding, practical application, digital decision-making, coding logic, cyber awareness, AI awareness and problem-solving.

MENTIONS MAXIMUM TIME

Certainly. For the BrainBox Olympiad – Information Technology & AI, the examination pattern can include the following maximum time:

BrainBox IT & AI Olympiad – Examination Pattern

Classes	Number of Questions	Maximum Marks	Maximum Time
I–V	40	40	60 Minutes
VI–VIII	50	50	75 Minutes
IX–X	60	60	90 Minutes

Recommended wording for the syllabus

Examination Duration:

Classes I–V: 60 Minutes

Classes VI–VIII: 75 Minutes

Classes IX–X: 90 Minutes

The BrainBox Olympiad will consist of objective-type, application-based, competency-based, analytical and logical questions. Students are expected to apply their understanding of Information Technology, Artificial Intelligence, Computational Thinking, Coding, Cyber Safety and emerging technologies rather than relying solely on memorisation. For the IT & AI Olympiad, I recommend retaining 60/75/90 minutes, as it provides sufficient time for students to solve conceptual and application-based questions without making the examination unnecessarily lengthy.