

**CLASS XII**  
**SUBJECT: - INFORMATICS PRACTICES (065)**

Unit	Topic	Period		Marks	
		Theory	Practical	Theory	Practical
1	NETWORKING AND OPEN STANDARDS	20	4	10	2
2	PROGRAMMING	42	40	25	16
3	RELATIONAL DATABASE MANAGEMENT SYSTEM	42	36	30	8
4	IT APPLICATION	6	20	5	4
		<b>110</b>	<b>100</b>	<b>70</b>	<b>30</b>

**I.P. (Theory)**

S No	Month	Topic Details	Required No. of Periods		No. Of Tentative Working days
			Theory/ Computer Aided teaching	Practical	
1	April	<p><b>UNIT 1: NETWORKING AND OPEN STANDARDS</b></p> <p><b>Computer Networking:</b> Networking - a brief overview, Basic concept of domain name, MAC, and IP Address, Identifying computers and users over a network (Domain Name, MAC 'Media Access Control' and IP address), domain name resolution, Network Topologies, Types of network - LAN, MAN, WAN, PAN; Wired Technologies - Co-Axial, Ethernet Cable, Optical Fiber; Wireless Technologies - Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link; Network Devices – Hub, Switch, Repeater, Gateway - and their functions Network security - denial of service, intrusion problems, snooping</p> <p><b>Open Source Concepts:</b> Open Source Software (OSS), common FOSS/FLOSS examples (e.g. Gnu/Linux, Firefox, Open Office), common open standards (open</p>	28	4	22

		document format Ogg Vorbis) Indian Language Computing: character encoding, UN I CODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text - phonetic and key map based. <b>UNIT Review of Class XI;</b> (Refer to Appendix A for sample guidelines of GUI Programming, and Appendix B for Swing Control Methods & Properties)			
2	<b>May - June</b>	<b>Review of Class XI continued.....</b> (Refer to Appendix A for sample guidelines of GUI Programming, and Appendix B for Swing Control Methods & Properties) Basic concept of Access specifier for classes, Members and methods.	15	10	18
3	<b>July</b>	<b>Basic concept of Inheritance:</b> need, Method Overloading and Overriding, Abstract Class and Interfaces, use of inter faces. <b>Commonly used libraries:</b> String class and methods: toString(), concat(), length(), toLowerCase() ,toU pperCase(), trim (), substring() Math object: pow(), round()	25	10	25
4	<b>August</b>	Accessing MySQL database using ODBC/JDBC to connect with database.  <b>Web application development:</b> U RL, Web Server, Communicating with the web server, concept of Client and Server Side. <b>HTML based web pages covering basic tags -</b> HTML, TITLE, BODY, H1..H6, Paragraph (P), LineBreak (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), FORM ;Creating and accessing static pages using HTML and introduction to XML	20	15	23
5	<b>Sept</b>	<b>Review of RDBMS from Class XI</b>  <b>Database Fundamentals</b> Concept of Database Transaction, Committing and revoking a Transaction using COMM IT and REVOKE <b>Grouping Records:</b> GROUP BY, Group functions - MAX(), M IN(), AVG(), SUM(), COUNT());	18	12	20

		using COUNT(*), DISTINCT clause with COUNT, Group Functions and Null Values, <b>Displaying Data From Multiple Tables:</b> Cartesian product, Union, concept of Foreign Key, Equi -Join			
6	<b>Oct</b>	Creating a Table with PRIMARY KEY and NOT NULL constraints, adding a Constraint, enabling Constraints, Viewing Constraints, Viewing the Columns Associated with Constraints;	14	13	17
7	<b>Nov</b>	ALTER TABLE for deleting a column, ALTER TABLE for modifying data types of a column <b>DROP Table for deleting a table;</b>  <b>UNIT 4: IT APPLICATIONS</b> <b>Front-end Interface</b> - Introduction; content and features; identifying and using appropriate component (Text Box, Radio Button, CheckBox, List) for data entry, validation and display; <b>Back-end Database</b> - Introduction and its purpose; exploring the requirement of tables and its essential attributes; <b>Front-End and Database Connectivity</b> - Introduction, requirement and benefits Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Busi ness and e-Learning applications  <b>Revision for I Pre Board Examination</b>	20	10	20
8	<b>Dec</b>	<b>Revision, Project Work Preparation &amp; I Pre Board Examination</b>			
9	<b>Jan</b>	<b>Revision, Finalisation of Project &amp; II Pre Board Examination</b>			
10	<b>Feb</b>	<b>Revision, CBSE Practical Exam</b>			

## Class XII (Practical)

S. No.	Description	Marks
1	Problem Solving using Java	10
2	SQL Queries	4
3	Practical Record <ul style="list-style-type: none"><li>• Simple Problems using IDE Java</li><li>• SQL Queries</li><li>• IT Applications</li></ul>	6
4	Project Work	4
5	Viva Voce	6

### Evaluation of Practical Examination

#### 1. Problem Solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file. Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session.

#### 2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory. Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

#### 3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- At least 12 solutions of simple problems and 2 IT applications using IDE based Java (refer to Appendix 'A' & 'B')
- At least 24 SQL queries based on one and/or two tables
- Solution of at least 2 simple problems incorporating Java Application & Database connectivity

#### 4. Project File

Students in group of 2-3 are required to work collaboratively to develop a project using Programming and Database skills learnt during the course. The project should be an application with GUI front-end based on any one of the following domains - e-Governance, e-Business and e-Learning

#### 5. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session

**CBSE Curriculum Appendix 'A'**  
**Sample Guidelines for GUI Programming**

1. To display a message using Label, TextBox, MessageDialog using simple GUI applications
2. To concatenate two text entries and display using simple GUI application
3. To perform a simple arithmetic operation (+,-,\*,/) and display the result in MessageDialog or TextBox using simple GUI application
4. To perform simple arithmetic operation (+,-,\*,/) and display the result in TextBox using simple GUI application
5. To make simple decision making (if statement) solution and display relevant message using GUI application (Example - Problems related to Eligibility for a given value of Age, "Profit" or "Loss" messages for given values of Cost Price and Sale Price, Grade Display for given values of Marks of students etc.)
6. To create a simple GUI application to perform both arithmetic and logical operation together (Example - Total, Average and Grade calculation for given marks, Salary Calculation on different criteria)
7. To create a simple GUI application to perform an operation based on the criteria input by the user in a Check Box or a Radio Button.  
(Example 1: Find the Discount of an item on the basis of Category of item [Electrical Appliance/ Electronic Gadget/Stationary specified using a Radio button] and its Cost [Below 1000/Above 1000/Equal to 1000 specified using a Radio button]).  
(Example 2: Calculate the incentive of a Sales Person on the basis of his Sales Amount, Customer Feedback, Count of Customer specified using Check Box) [Introduce variable declaration.
8. To create a simple GUI application to change the property of a swing element based on the selection made by the user  
(Example 1: To change the background or Foreground color of any of the Swing elements of the form based on the color selected from a list)  
(Example 2: To change the foreground and background color of a label based on the values input/stored in a combo box)
9. To store the data(Admission No., Name, Date of Birth, Class and Section) of 10 students in a table [Table] and find total number of students in each class and section.
10. To create a simple GUI application for repeatedly doing a task based on the user input. (Example: To display the multiplication table of a number input by the user)

**Sample Guidelines for Connectivity Problems**

11. To create a simple GUI application that counts and displays the number of records present in database table.
12. To create a simple GUI application that displays the records of a database table in a tabular format (using jTable) on the GUI form.
13. To create a simple GUI application that displays the records of a database table in a tabular format (using jTable) on the GUI form based on a criteria input by the user.
14. To create a simple GUI application to perform a calculation based on a value retrieved from database table and a value entered by the user in a GUI application.

**Appendix 'B'**  
**Ready Reference for GUI Programming**  
**Swing Control Methods & Properties**

<b>Class</b>	<b>Swing Control</b>	<b>Methods / Properties</b>	
<b>Jbutton</b>	<b>jButton</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getText()</b></li> <li>• <b>setText()</b></li> </ul>
		Properties	<ul style="list-style-type: none"> <li>• Background</li> <li>• <b>Enabled</b></li> <li>• Font</li> <li>• Foreground</li> <li>• <b>Text</b>      <b>have same</b></li> <li>• <b>Label</b>      <b>value (by</b></li> <li>                 <b>default)</b></li> </ul>
<b>Jlabel</b>	<b>jLabel</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getText()</b></li> <li>• <b>setText()</b></li> </ul>
		Properties	<ul style="list-style-type: none"> <li>• Background</li> <li>• <b>Enabled</b></li> <li>• Font</li> <li>• Foreground</li> <li>• <b>Text</b></li> </ul>
<b>JtextField</b>	<b>jTextField</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getText()</b></li> <li>• <b>isEditable()</b></li> <li>• <b>isEnabled()</b></li> <li>• <b>setText()</b></li> </ul>
		Properties	<ul style="list-style-type: none"> <li>• Background</li> <li>• <b>Editable</b></li> <li>• <b>Enabled</b></li> <li>• Font</li> <li>• Foreground</li> <li>• <b>Text</b></li> </ul>
<b>JRadioButton</b>	<b>jRadioButton</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getText()</b></li> <li>• <b>setText()</b></li> <li>• <b>isSelected()</b></li> <li>• <b>setSelected()</b></li> </ul>
		Properties	<ul style="list-style-type: none"> <li>• Background</li> <li>• <b>Button Group</b></li> <li>• <b>Enabled</b></li> <li>• Font</li> <li>• Foreground</li> <li>• <b>Label</b></li> <li>• <b>Selected</b></li> <li>• <b>Text</b></li> </ul>
<b>JcheckBox</b>	<b>jCheckBox</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getText()</b></li> <li>• <b>setText()</b></li> <li>• <b>isSelected()</b></li> <li>• <b>setSelected()</b></li> </ul>

		Properties	<ul style="list-style-type: none"> <li>• <b>Button Group</b></li> <li>• <b>Font</b></li> <li>• <b>Foreground</b></li> <li>• <b>Label</b></li> <li>• <b>Selected</b></li> <li>• <b>Text</b></li> </ul>
<b>ButtonGroup</b>	<b>jButtonGroup</b>	Properties	• <b>Add</b>
<b>JcomboBox</b>	<b>jComboBox</b>	Methods	<ul style="list-style-type: none"> <li>• <b>getSelectedItem()</b></li> <li>• <b>getSelectedIndex()</b></li> <li>• <b>setModel()</b></li> </ul>
		Properties	<ul style="list-style-type: none"> <li>• <b>Background</b></li> <li>• <b>ButtonGroup</b></li> <li>• <b>Editable</b></li> <li>• <b>Enabled</b></li> <li>• <b>Font</b></li> <li>• <b>Foreground</b></li> <li>• <b>Model</b></li> <li>• <b>SelectedIndex</b></li> <li>• <b>SelectedItem</b></li> <li>• <b>Text</b></li> </ul>
<b>Jlist</b>	<b>jList</b>	Methods	• <b>getSelectedValue()</b>
		Properties	<ul style="list-style-type: none"> <li>• <b>Background</b></li> <li>• <b>Enabled</b></li> <li>• <b>Font</b></li> <li>• <b>Foreground</b></li> <li>• <b>Model</b></li> <li>• <b>SelectedIndex</b></li> <li>• <b>SelectedItem</b></li> <li>• <b>SelectionMode</b></li> <li>• <b>Text</b></li> </ul>
<b>Jtable</b>	<b>jTable</b>	Methods	<ul style="list-style-type: none"> <li>• <b>addRow()</b></li> <li>• <b>getModel()</b></li> </ul>
		Properties	• <b>model</b>
<b>JOptionPane</b>		Methods	• <b>showMessageDialog()</b>
<b>DefaultTableModel</b>		Methods	<ul style="list-style-type: none"> <li>• <b>getRowCount()</b></li> <li>• <b>removeRow()</b></li> <li>• <b>addRow()</b></li> </ul>

### Commonly used Methods

<b>Class</b>	<b>Methods</b>
Integer	<ul style="list-style-type: none"><li>• <b>parseInt()</b></li><li>• <b>toDouble()</b></li><li>• <b>toString()</b></li></ul>
String	<ul style="list-style-type: none"><li>• <b>concat()</b></li><li>• <b>length()</b></li><li>• <b>substring()</b></li><li>• <b>toDouble()</b></li><li>• <b>toLowerCase()</b></li><li>• <b>toUpperCase()</b></li><li>• <b>trim()</b></li></ul>
Double	<ul style="list-style-type: none"><li>• <b>parseDouble ()</b></li><li>• <b>toString()</b></li><li>• <b>toInt()</b></li></ul>
Math	<ul style="list-style-type: none"><li>• <b>pow()</b></li><li>• <b>round()</b></li></ul>

### Database Connectivity Methods

<b>Class</b>	<b>Methods</b>
Connection	<ul style="list-style-type: none"><li>• <b>createStatement()</b></li><li>• <b>close()</b></li></ul>
DriverManager Statement ResultSet	<ul style="list-style-type: none"><li>• <b>getConnection()</b></li><li>• <b>executeQuery()</b></li><li>• <b>next()</b></li><li>• <b>first()</b></li><li>• <b>last()</b></li><li>• <b>getString()</b></li></ul>
Exception	<ul style="list-style-type: none"><li>• <b>getMessage()</b></li></ul>
System	<ul style="list-style-type: none"><li>• <b>exit()</b></li></ul>