

Split up syllabus
Informatics Practices(065)
2017-18
Class XI

Unit	Marks
1 Introduction to Computer Systems	10
2 Introduction to Programming	25
3 Relational Database Management System	30
4 IT Applications	5

Month	No. of Days	No. of Periods	Topic	Periods Theory +Practical
July	25	36	<p>Unit 1: Introduction to Computer Systems</p> <p>Hardware Concepts: Computer organization (basic concepts): CPU, Memory (RAM and ROM), I/O devices, communication bus, ports (serial, parallel), device specific ports; Input devices: Keyboard, Mouse, Light pen, Touch screen, Graphics Tablet, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, Web camera; Output Devices: Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Deskjet/ Inkjet/ Bubble jet Printer, Laser Printer), Plotter, Speaker; Secondary Storage Devices: Floppy disk, Hard disk, Compact disk, Magnetic tape, Digital Versatile disk (DVD), Flash drive, Memory cards. Comparative properties of storage media; Memory Units: bit, byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte) E-waste disposal.</p> <p>Security of computer system Sources of attack and possible damages, malware – virus, worms, 203oolea, spyware- and their propagation, cookies as security threat, malware detection using a tool. Computer security, Digital certificate, Digital signature, firewall, password, file access permissions</p> <p>Types of Software: a) System Software: (i) Operating systems: Need for operating system, major functions of Operating System; Examples of OS for mainframe, PC/Server, and mobile devices. (ii) Language Processors: Assembler, Interpreter, and Compiler b) Utility Software: Compression tools, disk defragmenter, anti-virus. c) Application Software: (i) General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System, Integrated Development Environment (IDE) (ii) Specific Purpose Application software: Inventory Management System, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System, etc.</p>	20+16
August	22	28	<p>Unit 2: Introduction to Programming</p> <p>Getting started with Programming using IDE Introduction, Rapid Application Development using IDE (Integrated Development Environment);</p> <p>Programming Fundamentals Data Types: Concept of data types; Built-in data types – byte, short, int, long, float, double, char, String, Boolean Variables: Need to use variable, declaring variables, variable naming convention, assigning value to variables; Integer object method: parseInt Double object method: parseDouble, parseFloat Control structures: Decision</p>	14+14

			structure – if, if-else, switch; Looping structure- while, do . . while, for;	
September	23	30	Familiarization of IDE using basic Interface components- Label, Text Field, Text Area, Button, Checkbox, Radio Button. (As per appendix A) Developing General Application (As per the guidelines at appendix B) –	15+15
October	15	18	Getting Familiar with Java Swing User Interface components-Frame, Dialog, Option Pane, Panel, Scroll Pane, Label, Text Field, Password Field, Text area, Button, Check Box, Radio Button, Combo Box, List. Basic component handling methods and properties: setText(), getText(), is Selected(), set Selected(). Programming Guidelines: General concepts; modular approach; Stylistic guidelines: clarity and simplicity of expressions and names; comments, indentation; Running and debugging programs, syntax errors, run-time errors, logical errors; Problem solving methodology: Understanding of the problem, Identifying minimum number of inputs required for output, breaking down problem into simple logical steps.	9+9
November	22	28	Unit 3: Relational Database Management System Database Management System Introduction to database concepts: database, relational database, relation/table, attribute/field, tuple /row; Data types: Text (CHAR, VARCHAR), Number (DECIMAL, INT/INTEGER), Date and Time Keys: candidate key, primary key, alternate key, foreign key; Examples of common Database Management System: MySQL, Ingres, Postgres, Oracle, DB2, MS SQL, Sybase, etc.; Common Database management tools for mobile devices. Introduction to MySQL (ANSI SQL 99 standard commands) Classification of SQL Commands: DML – SELECT, INSERT, UPDATE, DELETE DDL – CREATE, DROP, ALTER Creating and using a database: SQL CREATE command to create a database, USE command to select a database. Creating a table: CREATE command to create a table, DESC command to display a table structure, INSERT command for inserting new rows, inserting new rows with null values and values of all the studied data types. Displaying table data: SELECT command for selecting all the columns, selecting specific column(s) using arithmetic operators, operator precedence. Defining and using column alias. Eliminating duplicate values from display using DISTINCT keyword Limiting rows during selection (using WHERE clause) - Using comparison operators - =, <, >, <=, >=, <>, BETWEEN, IN, LIKE(%,_);	14+14
December	18	24	- Logical operators –AND, OR, NOT and corresponding operator precedence; Working with NULL values. ORDER BY clause: Sorting in ascending/descending order, sorting by column alias name, sorting on multiple columns; Manipulating data of a table/relation: update command to change existing data of a table, delete command for removing row(s) from a table. Restructuring a table: ALTER TABLE for adding new column(s) and deleting column (s); Functions in My SQL: String Functions: ASCII(), CHAR(), CONCAT(), INSTR(), LCASE(), UCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(),UPPER(), ASCII() Mathematical Functions: - POWER(), ROUND(), TRUNCATE().	12+12

			Date and Time Functions: CURDATE(), DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE().	
January	18	24	Unit 4: IT Applications e-Governance: Definition, benefits to citizens, e-Governance websites and their salient features and societal impacts; e-Governance challenges. e-Business: Definition, benefits to customers and business, e-Business websites and their salient features and societal impacts; e-Business challenges. e-Learning: - Definition; benefits to students (learners), teachers (trainers) and school (institution) management; e-Learning websites and their salient features and societal impacts; e-Learning challenges. In each of the above domains, identify at least two real-life problems, list the input(s) required for the expected output(s), and describe the problem solving approach. Impact of ICT on society – social and economic benefits, infomania.	10+14
February	22	28	Revision Project work in Javanetbeans.	14+14
March			Session Ending Exam	

CLASS XI (PRACTICAL) (2017-18)

S.No	Description	Marks
1	Problem Solving using Java	12
2	SQL Queries	4
3	Practical Records: <input type="checkbox"/> Productivity Tools <input type="checkbox"/> Simple Problems using Java <input type="checkbox"/> SQL Queries <input type="checkbox"/> IT Applications	10
4	Viva Voce	4
	Total	30

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 10 solutions of simple problems using IDE based Java (refer to Appendices 'A' & 'B').
- At least 3 IT applications – problem-solving framework.
- At least 20 SQL queries on any database.

4. 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. Out of 6 marks, 2 marks are allotted to test student's understanding of basic computer hardware and their functions.

Class XII
Informatics Practices(065)
2017-18

Unit	Marks
1 Introduction to Computer Systems	10
2 Introduction to Programming	25
3 Relational Database Management System	30
4 IT Applications	5

Month	No. of working Days	No. of Periods	Topic	Theory +Practical
April	22	28	<p>Unit 1: Networking and Open Standards Computer Networking: Networking: a brief overview; Communication Media: 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; Types of network: LAN, MAN, WAN, PAN; Network Topologies: Star, Bus, Tree; Network Protocols: HTTP, TCP/IP, PPP; Identifying computers and users over a network: Basic concept of domain name, MAC (Media Access Control), and IP Address, domain name resolution; Network security: denial of service, intrusion problems, snooping; Internet Applications: SMS, Voice Mail, Electronic Mail, Chat, Video Conferencing; Wireless/Mobile Communication: GSM, CDMA, WLL, 3G, 4G; Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers.</p> <p>Open Source Concepts: Open Source Software (OSS), common FOSS/FLOSS examples (e.g., GNU/Linux, Firefox, OpenOffice, Java, Netbeans, MySQL), common open standards (WWW, HTML, XML, ODF, TCP, IP). • Indian Language Computing: character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text – phonetic and key map based.</p>	20+8
May	10	12	<p>Unit 2: Programming 25 Marks (46 Theory+44 Practical) Periods Review of Class XI; Programming Fundamentals (Swing Control Methods & Properties as per Appendix A, and sample guidelines of GUI Programming as per Appendix B)</p>	6+6

June	7	9	Basic concept of Access specifier for class members (data members and methods).	5+4
July	25	36	Basic concept of Inheritance. Commonly used libraries: - String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring() - Math class methods: pow(), round() Accessing MySQL database using ODBC/JDBC to connect with database.	16+20
August	22	28	<ul style="list-style-type: none"> • Web application development: URL, Web Server, Communicating with the web server, concept of Client and Server Side. • HTML based web pages covering basic tags – HTML, TITLE, BODY, H1..H6, Paragraph (P), Line Break (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), FORM. • Creating and accessing static pages using HTML and introduction to XML. 	14+14
September	23	30	<p>Unit 3: Relational Database Management System 30 Marks (50 Theory+40 Practical) Periods</p> <p>Review of RDBMS from Class XI</p> <p>Database Fundamentals</p> <ul style="list-style-type: none"> • Concept of Database Transaction, Committing and revoking a Transaction using COMMIT and ROLLBACK. • Grouping Records: GROUP BY, Group functions – MAX(), MIN(), AVG(), SUM(), COUNT(); using COUNT(*), DISTINCT clause with COUNT; Group Functions and Null Values. 	15+15
October	15	18	<ul style="list-style-type: none"> • Displaying Data From Multiple Tables: Cartesian product, Union, concept of Foreign Key, Equi-Join • Creating a Table with PRIMARY KEY and NOT NULL constraints, Viewing Constraints, Viewing the Columns Associated with Constraints using DESC command. • ALTER TABLE for <ul style="list-style-type: none"> - deleting column(s), modifying data type(s) of column(s), - adding a constraint, enabling constraints, dropping constraints. • DROP Table for deleting a table <p>Unit 4: IT Applications 05 Marks (10 Theory+26 Practical) Periods</p> <ul style="list-style-type: none"> • Front-end Interface: Introduction; content and features; identifying and using appropriate component (Text Box, Radio Button, CheckBox, List, etc., as learnt in Unit 2 (Programming)) for data entry, validation and display. • Back-end Database: Introduction and its purpose, exploring the requirement of tables and its essential attributes. • Front-End and Database Connectivity: Introduction, requirement and benefits. • Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Business and e-Learning applications. • Impact of ICT on society: Social and Economic benefits. In each of the above domains, identify at least two real-life problems, list the expected outputs and the input(s) required for the output, and describe the problem solving approach and develop relevant front-end interface and back-end database. 	9+9
November	22	28	Revision and Project work	14+14

December	18	24	Revision	
January	18	24	Revision	
February	22	28	CBSE Practical Exam	
March			CBSE Exam	

CLASS–XII: (PRACTICAL) (2017 – 18)

S.NO	Description	Marks
1	Problem solving using Java	10
	SQL queries	4
	Practical Records • Simple problems using IDE Java • SQL Queries • IT Applications	5
	Project Work	5
	Viva Voice	6
	TOTAL	30

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 practicing 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 using IDE based Java (refer to Appendices ‘A’ & ‘B’).
- Solution of at least 2 simple problems incorporating Java Application & Database connectivity.
- At least 24 SQL queries based on one and/or two tables.
- At least two web pages using HTML.

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 in any one of the domains – e-Governance, e-Business and e-Learning – with GUI front-end and corresponding database at the back-end.

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.

