**INDIAN SCHOOL AL WADI AL KABIR**

**Question Paper Design**

**Sub:Informatics Pracices Class:XII (2017-18)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Typology of Questions** | **Very** | **Short** | **Short** | **Long** | **Total** | **%** |  |
|  |  | **Short** | **Answer-I** | **Answer-II** | **Answer** | **Marks** | **Weightage** |  |
|  |  |  |  |  |  |  |
|  |  | **Answer** | **(SA-I)** | **(SA-II)** | **(L.A)** |  |  |  |
|  |  | **(VSA)** | **(2 marks)** | **(4 marks)** | **(6 marks)** |  |  |  |
|  |  | **(1 mark)** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 1 | Knowledge Based | 4 | 3 | 2 | - | 18 | 25.7 |  |
|  |  |  |  |  |  |  |  |  |
| 2 | Conceptual | 4 | 5 | 1 | - | 18 | 25.7 |  |
|  | Understanding |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 3 | Reasoning Based | 4 | - | 2 | 1 | 18 | 25.7 |  |
|  |  |  |  |  |  |  |  |  |
| 4 | Skill based | - | 1 | 2 | 1 | 16 | 22.9 |  |
|  |  |  |  |  |  |  |  |  |
|  | **Total marks** | **12** | **9** | **7** | **2** | **70(30)** | **100** |  |
|  |  |  |  |  |  |  |  |  |

1. No chapter wise weightage. Care to be taken to cover all the chapters.
2. The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and topology of questions same.
3. Questions may be case based requiring problem solving skills.
4. LA Questions may be case-based requiring problem–finding and problem –solving skills.

**Unit 1: Networking and Open Standards**

**Computer Networking**:

*Networking*: a brief overview,

*Communication Media*: Wired Technologies – Co-Axial, Ethernet Cable, Optical Fiber; WirelessTechnologies – Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link;

*Network Devices*: Modem, 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, Remote access software such as Team Viewer;

*Identifying computers and users over a network*: Basic concept of domain name, MAC (MediaAccess Control), and IP Address, domain name resolution

*Network Security Concepts*: Cyber Law, Firewall, Cookies, Hackers and Crackers

*Network security threats*: Denial of service, Intrusion problems, Snooping, Eavesdropping

*Internet Applications*: SMS, Voice Mail, Electronic Mail, Chat, Video Conferencing

*Wireless/Mobile Communication*: GSM, CDMA, WLL, 3G, 4G

**Open Source Concepts:**

Open Source Software (OSS), common FOSS/FLOSS examples (GNU/Linux, Firefox, OpenOffice, Java, Netbeans, MySQL). Common open standards (HTML, XML, ODF, TCP/IP, CSS)

*Indian Language Computing*: Character encoding, UNICODE, different types of fonts (opentype vs true type, static vs dynamic), Entering Indian Language Text – phonetic and key map based, Inscript.

**Unit 2: Programming**

**Review of Class XI;**

**Programming Fundamentals**

(Refer to Appendix A for Swing Control Methods & Properties, and Appendix B for sample guidelines of GUI Programming)

Basic concept of Class, Object, Inheritance and Polymorphism Commonly used libraries:

* + String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), subString()
	+ Math class methods: pow(), round()

Accessing MySQL database using JDBC to connect with database.

*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>, <B>,<I>,<U>, <CENTER>, <COMMENT>, <IMG>, ANCHOR <A>, Paragraph <P>, Line Break <BR>, Horizontal Rule <HR>, <FONT>, <TABLE>, <LIST> <UL>, <OL>, <FORM>

Creating and accessing static pages using HTML and introduction to XML

**Unit 3: Relational Database Management System**

**Review of RDBMS from Class XI**

**Database Fundamentals**

Concept of Database transaction, Committing and revoking a transaction using COMMIT and

ROLLBACK AND SAVEPOINT.

*Grouping Records*: GROUP BY, Group functions - MAX(), MIN(), AVG(), SUM(), COUNT(); usingCOUNT(\*), DISTINCT clause with COUNT; Group Functions in case of Null Values.

Creating a Table with PRIMARY KEY, Foreign Key, Unique and NOT NULL constraints, Viewing Constraints, Using DESC command to view constraints.

*Displaying Data From Multiple Tables*: Cartesian product, Union, Intersection and Equi-JoinALTER TABLE for

* + Deleting column(s), modifying data type(s) of column(s),
	+ Adding a constraint, enabling constraint, dropping constraints. DROP Table for deleting a table or a database.

**Unit 4:** **IT Applications**

*Front-end Interface*: Introduction; content and features; identifying and using appropriatecomponent (Text Field, 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 databases,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, Environmental 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.

**COURSE DESIGN**

**Class XII (Practical) (2017-18)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** |  | **Description** |  | **Marks** |
|  |  |  |  |
| 1 | Problem Solving using Java |  | 10 |
|  |  |  |  |
| 2 | SQL Queries |  | 5 |
|  |  |  |  |
| 3 | Practical Record |  | 6 |
|  | Identify Network configuration and OSS used in school | 1 |  |
|  | Simple problems using IDE Java and Database Connectivity | 2 |  |
|  |  | SQL Queries | 1 |  |
|  |  | IT Applications | 2 |  |
|  |  |  |  |
| 4 | Project Work : IT Applications |  | 5 |
|  |  |  |  |
| 5 | 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.

1. **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 four queries based on one table and one query based on two tables during final practical examination to be conducted at the end of the academic session

1. **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:

Network Configuration and open source software used in your school.

At least 12 solutions of simple problems using IDE based Java (refer to Appendices ‘A’ & ‘B’) and 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

1. **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.

1. **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.

**COURSE DESIGN**

**Class – XII (2017-18)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit** | **Topic** | **Marks** |  |
|  |
|  |
|  |  |  |  |
|  |  |  |  |
| 1 | Networking and Open Standards | 10 |  |
|  |  |  |  |
| 2 | Introduction to Programming | 25 |  |
|  |  |  |  |
| 3 | Relational Database Management System | 30 |  |
|  |  |  |  |
| 4 | IT Applications | 05 |  |
|  |  |  |  |
|  | **Total** | **70** |  |
|  |  |  |  |