B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

PRE BOARD 3 EXAM : 2025-26
INFORMATION TECHNOLOGY (802)

Class: XII (SUBJECT-5) **Time : 3 hrs.**
Date: 17-01-2026 **Max Marks: 60**
Admission No. : …..…… **Roll No. :**

General Instructions:

1. *Please read the instructions carefully.*
2. *This Question Paper consists of 24 questions in two sections: Section A & Section B.*
3. *Section A has Objective type questions whereas Section B contains Subjective type questions.*
4. *Out of the given (6 + 18 =) 24 questions, a candidate has to answer (6 + 11 =) 17 questions in the allotted (maximum) time of 3 hours.*
5. *All questions of a particular section must be attempted in the correct order.*
6. ***SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):***
   - *i. This section has 06 questions.*
   - *ii. There is no negative marking.*
   - *iii. Do as per the instructions given.*
   - *iv. Marks allotted are mentioned against each question/part.*
7. ***SECTION B – SUBJECTIVE TYPE QUESTIONS (30 MARKS):***
   - *i. This section has 18 questions.*
   - *ii. A candidate has to do 11 questions.*
   - *iii. Do as per the instructions given.*
   - *iv. Marks allotted are mentioned against each question/part.*

MARKING SCHEME

SECTION A: OBJECTIVE TYPE QUESTIONS

Q.(1) Answer any 4 out of the given 6 questions on Employability Skills. (4 x 1 = 4)

1. (a) Interview
2. (a) Self control
3. (d) All of these
4. (d) Cell
5. (b) Interpersonal skills
6. (c) Environmental education teacher

Q.(2) Answer any 5 questions out of the given 7 questions. (5 x 1 = 5)

(i) (a) To represent a mini real world
(ii) DBMS stands for Database Management System.
(iii) Attributes
(iv) (c) Enables easy data retrieval and querying
(v) Show Databases

(vi) Designing the database schema
(vii) length()

Q.(3) Answer any 6 questions out of the given 7 questions (6 x 1 = 6)

(i) Show tables from database_name;
(ii) SHOW DATABASES;
(iii) UPDATE
(iv) E-commerce system
(v) False
(vi) Tourism
(vii) (d) Testing

Q.(4) Answer any 5 questions out of the given 6 questions. (5 x 1 = 5)

1. (a) Visit the website
2. (c) Design
3. False
4. Convenient
5. Secure
6. (a) Concat()

Q.(5) Answer any 5 questions out of the given 6 questions (5 x 1 = 5)

(i) (c) length()
(ii) (a) numbers[2]
(iii) (b) The loop code block is skipped entirely
(iv) (d) Reversing
(v) (a) True
(vi) True

Q.(6) Answer any 5 questions out of the given 6 questions (5 x 1 = 5)

(i) A data structure that stores elements of the same data type sequentially.
(ii) 1 byte
(iii) Substringing
(iv) (a) Before each iteration of the loop
(v) (c) To allow the compiler to allocate appropriate memory
(vi) (c) Data redundancy

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills. (3 x 2 = 6)
Answer each question in 20-30 words.

Q.7 Explain any four elements / components of the communication cycle.

The communication cycle consists of several elements that ensure effective exchange of information. The **sender** is the person who initiates the message. **Encoding** is the process of converting ideas into words or symbols. The **channel** is the medium used to transmit the message, such as speech, writing or digital media. The **receiver** is the person who receives and interprets the message. Proper feedback completes the communication cycle.

Q.8 What is Goal setting? Explain with the help of SMART acronym.

Goal setting is the process of identifying specific objectives that a person wants to achieve within a certain time period. SMART is an acronym that helps in setting effective goals. **S – Specific** means goals should be clear. **M – Measurable** means progress can be tracked. **A – Achievable** ensures goals are realistic. **R – Relevant** means goals should be meaningful. **T – Time-bound** means goals should have a deadline.

Q.9 Differentiate between MAX() and MIN() functions with respect to OpenOffice Calc.

In OpenOffice Calc, the **MAX()** function is used to find the highest value from a selected range of cells. It is helpful when identifying maximum marks, highest sales, or top scores. The **MIN()** function returns the lowest value from a given range of cells. It is used to find minimum marks, lowest cost, or smallest value in data analysis.

Q.10 Explain any four qualities of an entrepreneur.

An entrepreneur must possess several important qualities. **Innovation** helps in creating new ideas and products. **Risk-taking ability** allows an entrepreneur to face uncertainty confidently. **Decision-making skill** helps in choosing the best options at the right time. **Leadership quality** enables an entrepreneur to motivate employees, manage resources effectively, and achieve business goals successfully.

Q.11 Define a Green job. Mention a few benefits of a green job.

A green job is an occupation that contributes to environmental protection and sustainable development. These jobs focus on conserving natural resources and reducing environmental damage. Benefits of green jobs include reduced pollution, energy conservation, promotion of eco-friendly practices, creation of employment opportunities, and support for a healthier and sustainable environment for future generations.

Answer any 3 out of the given 5 questions on Subject Specific Skills. (3 x 2 = 6)

Q.12 What are the types of users in DBMS? Explain.

DBMS users are classified based on their interaction with the database. **Database Administrators (DBA)** manage and control the database, handle security and backup. **Application Programmers** develop software applications that interact with the database. **End Users** use the database to retrieve and update data through applications. **System Analysts** design database structures according to organizational requirements.

Q.13 Difference between retrieving a particular record and retrieving all records using SELECT statement in SQL.

To retrieve **all records** from a table, the SELECT statement is used without any condition, for example: SELECT * FROM Student;. To retrieve a **particular record**, the SELECT statement uses a **WHERE clause** to specify conditions, such as: SELECT * FROM Student WHERE RollNo = 5;.

Q.14 What are the best practices for naming variables in Java?

Variable names in Java should be meaningful and clearly describe their purpose. They should follow **camelCase** naming convention, begin with a letter, and avoid spaces or special characters. Java keywords should not be used as variable names. Proper naming improves code readability, understanding, and maintenance.

Q.15 Explain Switch case used in Java. Give syntax and example.

The **switch case** statement in Java is a multi-way decision-making statement used when multiple conditions depend on a single variable. It compares the variable value with predefined cases and executes the matching block. The **break** statement prevents fall-through, and **default** executes when no case matches.

Syntax:

```
switch(expression) {
  case value1:
    statements;
    break;
  case value2:
    statements;
    break;
  default:
    statements;
}
```

Example:

```
int day = 2;
switch(day) {
  case 1: System.out.println("Monday"); break;
  case 2: System.out.println("Tuesday"); break;
  default: System.out.println("Invalid day");
}
```

Q.16 Database tables required for the following projects.

(a) Airlines Project:
The airline database may include tables such as **Flight** (flight number, source, destination), **Passenger** (passenger ID, name), **Booking** (booking ID, seat number), and **Ticket** (ticket number, fare, date).

(b) Hospital Management System:
Hospital databases may contain tables like **Patient** (patient ID, name, disease), **Doctor** (doctor ID, specialization), **Appointment** (date, time), and **Billing** (bill number, charges, payment details).

Answer any 2 out of the given 3 questions on Subject Specific Skills. (2 x 3 = 6)

Q.17 Write SQL command to create the given table and required queries.

To store information about gadgets, a table named **Gadget** is created with appropriate data types for each column such as character, text, date and integer values.

SQL Command to create the table

```
CREATE TABLE Gadget (
  G_ID CHAR(4),
  Description VARCHAR(20),
  Manufacture_Date DATE,
  Price INT,
  Warranty INT
);
```

(a) To display details of all the products

```
SELECT * FROM Gadget;
```

(b) To display details of products whose price is more than 10000

```
SELECT * FROM Gadget WHERE Price > 10000;
```

Q.18 Write a Java program to take three integers and display them in increasing order.

This program accepts three integers from the user, compares them using conditional statements, and prints them in increasing order.

```
import java.util.Scanner;

class IncreasingOrder {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int a = sc.nextInt();
        int b = sc.nextInt();
        int c = sc.nextInt();

        if (a <= b && a <= c) {
            if (b <= c)
                System.out.println(a + " " + b + " " + c);
            else
                System.out.println(a + " " + c + " " + b);
        } else if (b <= a && b <= c) {
            if (a <= c)
                System.out.println(b + " " + a + " " + c);
            else
                System.out.println(b + " " + c + " " + a);
        } else {
            if (a <= b)
                System.out.println(c + " " + a + " " + b);
            else
                System.out.println(c + " " + b + " " + a);
        }
    }
```

}

Q.19 Explain how DBMS and programming are useful in education, telecommunications and hotels.

DBMS and programming play an important role in managing large amounts of data efficiently.

- **Education:** They help store student records, examination results, attendance, and fees. Programming enables development of school management systems and online learning platforms.
- **Telecommunications:** DBMS manages customer data, call records, billing information and network usage. Programming helps automate billing systems and customer services.
- **Hotels:** DBMS stores guest details, room availability, bookings and billing records. Programming is used to develop hotel management software for reservations, check-in and check-out processes.

Answer any 3 out of the given 5 questions on Subject Specific Skills. (3 x 4 = 12)

Q.20 Write short notes on the following aggregate functions used in SQL.

Aggregate functions perform calculations on a set of values and return a single result.

(a) SUM()
The SUM() function calculates the total of numeric values in a column. It is commonly used to find total sales, total marks, or total expenses.
Example:

SELECT SUM(Price) FROM Gadget;

(b) MAX()
The MAX() function returns the highest value from a column. It helps identify maximum marks, highest salary, or most expensive product.
Example:

SELECT MAX(Price) FROM Gadget;

(c) MIN()
The MIN() function returns the lowest value from a column. It is useful for finding minimum marks, lowest price, or least salary.
Example:

SELECT MIN(Price) FROM Gadget;

(d) AVG()
The AVG() function calculates the average of numeric values in a column. It is used to find average marks, average salary, or average cost.
Example:

SELECT AVG(Price) FROM Gadget;

Q.21 Describe the following online course websites.

(a) Coursera
Coursera is an online learning platform that offers courses from universities and companies. It provides certificates, degrees, and professional courses in various subjects.

(b) Udacity
Udacity focuses on technology-based courses such as data science, artificial intelligence, and programming. It offers industry-relevant courses called Nanodegree programs.

(c) Khan Academy
Khan Academy is a free educational platform that provides video lessons and practice exercises. It mainly supports school-level education and helps students learn at their own pace.

(d) Udemy
Udemy is an online learning platform offering paid and free courses on skills like programming, business, design, and personal development, taught by individual instructors.

Q.22 What are different types of loops used in Java? Explain each with example.

Java provides three main types of loops to execute a set of statements repeatedly.

(a) for loop
Used when the number of iterations is known.
Example:

```
for(int i=1; i<=5; i++) {
   System.out.println(i);
}
```

(b) while loop
Used when the number of iterations is not fixed and depends on a condition.
Example:

```
int i = 1;
while(i <= 5) {
   System.out.println(i);
   i++;
}
```

(c) do-while loop
Executes the loop at least once, even if the condition is false.
Example:

```
int i = 1;
do {
   System.out.println(i);
   i++;
} while(i <= 5);
```

Q.23 Write a program in Java to take two strings as input and report their lengths.

This program takes two strings from the user and displays the length of each string using the length() method.

```
import java.util.Scanner;

class StringLength {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);

      System.out.print("Enter first string: ");
      String s1 = sc.nextLine();

      System.out.print("Enter second string: ");
      String s2 = sc.nextLine();

      System.out.println("Length of first string: " + s1.length());
      System.out.println("Length of second string: " + s2.length());
   }
}
```

Q.24 Write a Java program to check whether a number is even or odd. Explain the modulus operator.

The program checks whether a number is even or odd using the modulus (%) operator.

```
import java.util.Scanner;

class EvenOdd {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);

      System.out.print("Enter a number: ");
      int num = sc.nextInt();

      if(num % 2 == 0)
         System.out.println("The number is Even");
      else
         System.out.println("The number is Odd");
   }
}
```

Explanation of modulus (%) operator:
The modulus operator returns the remainder after division. If a number divided by 2 gives remainder 0, it is even; otherwise, it is odd.

********** ALL THE BEST **********