



B.K. BIRLA CENTRE FOR EDUCATION

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



**TERM 1 EXAMINATION (2026-27)
INFORMATION TECHNOLOGY (802)**

**SET - 2
MARKING SCHEME**

Class: XII (SUBJECT-5)

Date:

Admission No. :

Time : 3 hrs.

Max Marks: 60

Roll No. :

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of 23 questions in two sections: Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. All questions of a particular section must be attempted in the correct order.
5. **SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):**
 - i. This section has 05 questions.
 - ii. Marks allotted are mentioned against each question/part.
 - iii. There is no negative marking.
 - iv. Do as per the instructions given.
6. **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.

ANSWER KEY

SECTION A: OBJECTIVE TYPE QUESTIONS

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

- (i) The person who begins the process of communication by sending a message is called the
 - (a) Receiver **(b) Sender** (c) Channel (d) Feedback
- (ii) Which of the following is an example of non-verbal communication?
 - (a) A telephone call (b) A hand-written letter
 - (c) Facial expressions and gestures** (d) An e-mail
- (iii) In the acronym 'SMART' used to set goals, the letter 'A' implies
 - (a) Attractive **(b) Achievable** (c) Available (d) Advanced
- (iv) Which personality trait is characterised by an inflated sense of self-importance and a need for admiration?
 - (a) Paranoid (b) Schizoid **(c) Narcissistic** (d) Avoidant

(v) The rectangular box formed at the intersection of a row and a column in a spreadsheet is called a

(a) Range **(b) Cell** (c) Table (d) Worksheet

(vi) Which feature of a spreadsheet is used to display only those rows that satisfy a given condition?

(a) Sorting **(b) Filtering** (c) Formatting (d) Merging

Q.(2) Answer any 8 out of the given 10 questions on Introduction to DBMS. (8 x 1 = 8)

(i) Which of the following is a major disadvantage of a traditional file system?

(a) Data redundancy (b) Data security (c) Data sharing (d) Data backup

(ii) A table in a relational database is also known as a

(a) Tuple **(b) Relation** (c) Domain (d) Attribute

(iii) The number of tuples present in a relation is called its

(a) Degree **(b) Cardinality** (c) Domain (d) Attribute

(iv) Which key is used to establish a relationship between two tables of a database?

(a) Primary key (b) Candidate key **(c) Foreign key** (d) Alternate key

(v) The set of all possible values that an attribute can take is called its

(a) Degree (b) Tuple **(c) Domain** (d) Relation

(vi) Which of the following is an advantage of using a DBMS?

(a) Increase in data redundancy **(b) Reduction in data inconsistency**

(c) Loss of data security (d) Difficulty in retrieving data

(vii) Who is responsible for designing, managing and maintaining the database of an organisation?

(a) Programmer **(b) Database Administrator**

(c) End user (d) Network Administrator

(viii) Which of the following is an example of DBMS software?

(a) MySQL (b) Photoshop

(c) Notepad (d) VLC Media Player

(ix) Raw, unprocessed facts and figures are known as

(a) Information **(b) Data** (c) Report (d) Record

(x) State whether the following statement is True or False:

A primary key of a table can contain a NULL value.

Ans. False (A primary key can never contain a NULL value.)

Q.(3) Answer any 5 out of the given 6 questions on Working with SQL. (5 x 1 = 5)

(i) Which SQL command is used to display the list of all the tables present in a database?

(a) SHOW DATABASES; **(b) SHOW TABLES;**

(c) DISPLAY TABLES; (d) LIST TABLES;

(ii) Which of the following aggregate functions returns the number of rows in a table?

(a) SUM() **(b) COUNT()** (c) MAX() (d) AVG()

(iii) Which SQL statement is used to retrieve data from one or more tables of a database?

(a) INSERT (b) UPDATE **(c) SELECT** (d) ALTER

(iv) Which of the following statements is true about using the RESTRICT option while dropping a column in SQL?

(a) The column is dropped even if it is referenced in other tables.

(b) The column cannot be dropped if it is being referenced in other tables.

(c) The column is renamed instead of being dropped.

(d) The column is dropped along with all the dependent objects automatically.

(v) Which SQL command is used to remove a table along with its structure from a database?

(a) DELETE (b) **DROP** (c) TRUNCATE (d) REMOVE

(vi) Fill in the blank: The clause is used with the SELECT statement to group the rows on the basis of the value of a column.

(a) ORDER BY (b) WHERE (c) **GROUP BY** (d) HAVING

Q.(4) Answer any 5 out of the given 6 questions on Operating Web based Application.

(5 x 1 = 5)

(i) Which of the following is an example of an online reservation system?

(a) **www.irctc.co.in** (b) www.w3schools.com

(c) www.mysql.com (d) www.netbeans.org

(ii) Which of the following best describes webinars?

(a) Pre-recorded video courses

(b) Text-based documents

(c) **Real-time lectures with opportunities to ask questions**

(d) Interactive games for learning

(iii) What is a major benefit of online learning?

(a) It only teaches how to use software.

(b) **It allows learners to study at their own location, time and pace.**

(c) It discriminates between students on the basis of age, caste and qualification.

(d) It is available only in regional languages.

(iv) In the Requirement Definition Phase of a web application project, defining the scope involves:

(a) Designing the user interface

(b) **Listing the features, goals and project limitations**

(c) Writing and testing the code

(d) Deploying and managing the website

(v) Which of the following correctly matches the website with its main focus?

(a) w3schools.com – Humanities and Social Science courses

(b) coursera.org – Drag and drop website development tool

(c) **ncert.nic.in – Online learning resources like e-books and journals**

(d) udacity.org – Free grammar testing website

(vi) Which of the following is not an advantage of online shopping?

(a) Shopping is possible round the clock.

(b) Products can be compared easily.

(c) **The product cannot be physically examined before purchase.**

(d) Home delivery of the product is available.

Q.(5) Answer any 8 out of the given 10 questions on Java Programming with NetBeans.

(8 x 1 = 8)

(i) Mention the expanded form of IDE in the context of programming.

Ans. Integrated Development Environment

(ii) Which of the following is a logical operator in Java?

(a) % (b) **&&** (c) += (d) ==

(iii) What will be the output of the following Java statements?

```
int a = 10;    a = a - 4;    System.out.print(a);
```

(a) 10 (b) **6** (c) 4 (d) 14

- (iv) Which method is used in Java to display the output on the screen and then move the cursor to the next line?
 (a) `System.out.print()` (b) **`System.out.println()`**
 (c) `getText()` (d) `setText()`
- (v) Which of the following statements is true about the switch statement in Java?
 (a) **The switch statement is used to execute a block of code based on the value of an expression.**
 (b) The break statement is optional and has no effect on the execution of a switch.
 (c) If no case matches, the program generates an error.
 (d) A switch can have only one case statement.
- (vi) Which data type is used to store true or false values?
 (a) int (b) **Boolean** (c) char (d) float
- (vii) Which keyword is used to exit from a switch case?
 (a) stop (b) exit (c) **break** (d) return
- (viii) How many primitive data types are available in Java?
 (a) 6 (b) 7 (c) **8** (d) 9
- (ix) State whether the following statement is True or False:
 If there is only one statement in the body of a for loop, the set of curly braces enclosing the body can be omitted.
Ans. True
- (x) Which loop executes its body at least once?
 (a) for (b) while (c) **do-while** (d) switch

SECTION B: SUBJECTIVE TYPE QUESTIONS

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

Q.(6) What is active listening? Mention any two ways of becoming a better listener.

1+1=2

Active listening means listening to the speaker with full attention, understanding the message completely and responding to it in a suitable manner.

Two ways of becoming a better listener:

1. Give full attention to the speaker, maintain eye contact and do not interrupt while he/she is speaking.
2. Ask questions and give feedback at the proper time to make sure that the message has been understood correctly.

Q.(7) Write any two points that should be kept in mind while writing an effective e-mail.

2

1. Write a short, clear and meaningful subject line.
2. Use a proper greeting (salutation) and keep the language simple, polite and formal.
3. Keep the message short and to the point, and check the spelling and grammar before sending.
4. Write a proper closing with your name, and attach the required files and correct e-mail address of the receiver.

(½ mark each for any four correct points)

Q.(8) What is a personality disorder? Name any two common personality disorders.

1+1=2

A personality disorder is a mental condition in which a person has an unhealthy and rigid pattern of thinking, feeling and behaving which is very different from what is normally expected and which creates problems in his/her daily life and relationships.

Any two: Paranoid personality disorder, Schizoid personality disorder, Narcissistic personality disorder, Antisocial personality disorder, Avoidant personality disorder, Obsessive-compulsive personality disorder.

Q.(9) Explain the SMART method of setting goals. 2

SMART is a method of setting goals in which every goal must be:

S – Specific: the goal should be clear and well defined.

M – Measurable: the progress of the goal should be measurable.

A – Achievable: the goal should be realistic and possible to achieve.

R – Relevant: the goal should be useful and related to one's aim.

T – Time-bound: the goal should have a fixed time limit for completion.

Q.(10) Write any two differences between sorting and filtering of data in a spreadsheet.

2

1. Sorting arranges the data in ascending or descending order, whereas filtering displays only those rows which satisfy a given condition.

2. In sorting, all the records remain visible and only their order changes, whereas in filtering the records that do not satisfy the condition are temporarily hidden.

Answer any 3 out of the given 5 questions: Answer each question in 20 – 30 words.

(3 x 2 = 6)

Q.(11) What is data redundancy? How does a DBMS help in reducing it? 1+1=2

Data redundancy means the unnecessary repetition or duplication of the same data at more than one place in a database or in different files.

A DBMS stores the data at a central place in an integrated form and allows the same data to be shared by all the users and applications, so separate copies of the same data are not required and redundancy is reduced.

Q.(12) Name and explain any two aggregate functions used in SQL. 1+1=2

1. SUM() – It returns the total (sum) of all the values present in a numeric column.

Example: SELECT SUM(Marks) FROM Student;

2. AVG() – It returns the average of all the values present in a numeric column. Example:

SELECT AVG(Marks) FROM Student;

(Any two correct aggregate functions with correct purpose: COUNT(), MAX(), MIN(), SUM(), AVG())

Q.(13) Write the output of the following Java code: 2

```
public class JavaProg {  
    public static void main(String[] args) {  
        String myStr = "Digital-India ";  
        System.out.println(myStr.concat("Mission"));  
    }  
}
```

Output:

Digital-India Mission

Explanation: The concat() method joins the second string at the end of the first string, so "Digital-India " and "Mission" together give Digital-India Mission.

Q.(14) Write any two rules that must be followed while naming a variable in Java. 2

1. A variable name may contain letters, digits, the underscore (_) and the dollar sign (\$), but it must begin with a letter, an underscore or a dollar sign and never with a digit.
2. A variable name cannot contain a blank space or any special symbol such as +, -, *, and a keyword (reserved word) of Java such as int, class or for cannot be used as a variable name.

(1 mark each for any two correct rules)

Q.(15) Write any two differences between a while loop and a do-while loop in Java. 2

1. In a while loop the condition is tested before the execution of the body, whereas in a do-while loop the condition is tested after the execution of the body.
2. A while loop is an entry-controlled loop and may not execute even once if the condition is false at the start, whereas a do-while loop is an exit-controlled loop and always executes at least once even if the condition is false.

Answer any 2 out of the given 4 questions: Answer each question in 30 – 50 words.

(2 x 3 = 6)

Q.(16) What is a primary key? How is it different from a foreign key? Explain with the help of an example. 1+2=3

A primary key is an attribute or a set of attributes of a table which uniquely identifies every record of that table. It can never contain a duplicate value or a NULL value.

Difference: A primary key uniquely identifies the records of its own table, whereas a foreign key is an attribute of one table which refers to the primary key of another table and is used to link the two tables. A foreign key may contain duplicate values as well as NULL values.

Example: In the table STUDENT(AdmNo, Name, ClassId), AdmNo is the primary key. In the table CLASS(ClassId, ClassName), ClassId is the primary key, and the same ClassId in the table STUDENT works as a foreign key which joins STUDENT with CLASS.

Q.(17) Write any three advantages of online shopping for a customer. 3

1. Shopping can be done at any time of the day or night and from any place, so there is no need to travel to a market or stand in a queue.
2. A large variety of products of different brands can be viewed, and their prices, features and customer reviews can be compared easily before buying.
3. The product is delivered at the doorstep, payment can be made online or on delivery, and discounts, offers and easy return or replacement facilities are also available.

(1 mark each for any three correct advantages)

Q.(18) Explain the following control statements of Java with the help of one example each: 3

(a) if-else statement (b) for loop (c) do-while loop

1. if-else statement: It is a conditional statement which executes one block of statements when the condition is true and another block when the condition is false.

```
if (marks >= 33)   System.out.println("Pass");
else               System.out.println("Fail");
```

2. for loop: It is an entry-controlled loop which is used when the number of repetitions is known in advance. Initialisation, condition and updation are written together in one line.

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

3. do-while loop: It is an exit-controlled loop in which the condition is checked after executing the body, so the body is always executed at least once.

```
int i = 1;
```

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

(1 mark for each correct explanation with a suitable example)

Q.(19) What will be the output of the following Java program when executed? 3

```
public class Series {
    public static void main(String[] args) {
        int sum = 0;
        for (int i = 1; i <= 5; i++) {
            if (i % 2 == 0)
                sum = sum + i;
        }
        System.out.println("Sum = " + sum);
    }
}
```

Output:

```
Sum = 6
```

Explanation: The loop runs for i = 1, 2, 3, 4 and 5. Only the even values of i, i.e. i = 2 and i = 4, satisfy the condition i % 2 == 0 and are added to sum, while the odd values 1, 3 and 5 are skipped. Therefore sum = 0 + 2 + 4 = 6, and the program prints Sum = 6.

(3 marks for the correct output; marks may be awarded for correct working/steps shown)

Answer any 3 out of the given 4 questions: Answer each question in 50 – 80 words.

(3 x 4 = 12)

Q.(20) Answer the following questions related to a Database Management System:

1+1+1+1=4

(a) A Database Management System (DBMS) is a software which is used to create, store, manage, retrieve and update the data of a database in an easy and efficient manner, for example MySQL and Oracle. Advantage: it reduces data redundancy, i.e. the unnecessary duplication of data.

(b) A tuple is a single row (record) of a table which contains the complete information about one entity, whereas an attribute is a column of a table which represents one property of the entity. Example: in the table STUDENT(AdmNo, Name, Marks), Name is an attribute and the row (101, Riya, 92) is a tuple.

(c) Data consistency means that the same data stored at different places in a database always has the same value, so that there is no conflict or mismatch in the data. It is achieved by removing redundancy and by applying integrity constraints.

(d) Any two of: Railway/airline reservation systems, banking systems, school or college student record systems, hospital management systems, online shopping websites, library management systems.

(1 mark for each correct part)

Q.(21) (a) What is e-Governance? Write any two benefits of e-Governance to a citizen.

2+2=4

(b) Write any two advantages of online education.

(a) e-Governance means the use of the Internet and information and communication technology by the government to deliver its services, schemes and information to citizens in a fast, easy and transparent way.

Benefits to a citizen:

1. Government services such as paying bills, filing returns, booking tickets and applying for documents can be availed from home at any time, which saves time and money.

2. It brings transparency, reduces corruption and paperwork, as the citizen deals directly with the system and can track the status of his/her application online.

(b) Advantages of online education:

1. A student can learn from any place and at any time, at his/her own pace, and the recorded lectures and study material can be used again and again for revision.

2. It saves the time and cost of travelling, and the courses of good institutions and teachers, along with e-books, videos and quizzes, become available to every student.

(1 mark each for any two correct points in each part)

Q.(22) Explain the following terms in the context of Java: 4

(a) Variable: A variable is a named memory location which is used to store a value that can be changed during the execution of the program. Example: `int age = 17;`

(b) Data type: A data type specifies the type of data that a variable can store and the amount of memory reserved for it. Example: `int`, `float`, `char`, `double`, `boolean`.

Q.(23) (a) Write a Java program to calculate and display the area of a rectangle whose length is 12 units and breadth is 8 units. 2+2=4

```
public class Rectangle {
    public static void main(String[] args) {
        int length = 12;
        int breadth = 8;
        int area = length * breadth;
        System.out.println("Area of the rectangle = " + area);
    }
}
```

(Area of the rectangle = 96) (2 marks for a correct program; marks may be given for any correct equivalent code)

(b) What will be the output of the following Java program when executed?

```
public class Counter {
    public static void main(String[] args) {
        int i = 1;
        while (i <= 4) {
            System.out.println("Value = " + i);
            i = i + 2;
        }
    }
}
```

(b) Output:

```
Value = 1
Value = 3
```

Explanation: i starts from 1 and is increased by 2 each time. The values 1 and 3 satisfy the condition $i \leq 4$ and are printed; when i becomes 5 the condition becomes false and the loop stops. (1 mark for each correct line of output)

******* END OF MARKING SCHEME – SET - 2 *******