B.K. BIRLA CENTRE FOR EDUCATION

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

TERM-1 EXAMINATION (2025-26)
INFORMATION TECHNOLOGY (802) / SUBJECT-05

MARKING SCHEME

Class : XI A/B/C | **Duration : 3 Hrs.**
Date : 03-09-2025 | **Max. Marks : 60**
Admission No.: | **Roll No.:**

General Instructions:

(i) Please read the instructions carefully.
(ii) This question paper consists of 24 questions in two Sections: Section – A & Section – B.
(iii) Section – A has Objective type questions whereas Section – B contains Subjective type questions.
(iv) 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.
(v) All questions of a particular section must be attempted in the correct order.

(vi) Section – A: Objective Type Questions (30 marks)
(a) This section has 06 questions.
(b) There is no negative marking.
(c) Do as per the instructions given.
(d) Marks allotted are mentioned against each question/part.

(vii) Section – B: Subjective Type Questions (30 marks)
(a) This section has 18 questions.
(b) A candidate has to do 11 questions.
(c) Do as per the instructions given.
(d) Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q 1. **Answer any 5 out of the given 6 questions on Employability Skills (1 x 5 = 5 marks)**

i. What is the purpose of Communication ? 1
a. Inform (tell someone about something) b. Influence (get someone to do something you want) c. Share thoughts, ideas , feelings **d. All of the above**

ii. Which of the following methods is used to receive information from the sender ? 1
a. Listening b. Speaker c. Telling d. Writing

iii. What does an upright (straight) body posture convey or show ? 1
a. Shyness b. Fear **c. Confidence** d. Intelligence

iv. _____ refers to knowing one's potential by examining and analysing intellectual and spiritual capacities ? 1
a. Self-management **b. Self exploration** c. Grooming d. Intelligence

v. _____ means having the ability to impress the mind, arousing admiration, awe, respect for the way someone looks or carries oneself. 1
a. Grooming b. Team norms **c. Impressive appearance** d. None of these

vi. _____ refers to a group of people who have complementary skills and work towards a common goal. 1

a. Group b. Company **c. Team** d. None of these

Q 2. **Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**

i. What does the term "IPO" stand for in the context of computer operations ? 1

a. Input-Process-Output b. Input-program-Output c. Instruct-Process-Operate d. Input-Process-Operate

ii. In the binary number system, what does the digit "1" represent? 1

a. False b. High voltage **c. True** d. Low voltage

iii. What is the advantage of using high-level programming languages over machine language? 1

a. Faster execution b. Direct electric signal interpretation

c. Simplicity for developers d. Better compatibility with binary code

iv. What are the two main types of storage devices in a computer? 1

a. RAM and ROM **b. HDD and SSD**

c. Flash Memory and Cache Memory d. USB and Memory Cards

v. Which storage device uses spinning disks or platters to store data? 1

a. Cache Memory b. SSD c. Flash Memory **d. HDD**

vi. What is the main advantage of using an SSD over an HDD? 1

a. Higher capacity b. Slower speed c. Mechanical components **d. Faster speed**

Q 3. **Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**

i. What type of memory is volatile and loses its data when the computer is turned off? 1

a. ROM b. Cache Memory c. SSD **d. RAM**

ii. What is the role of the Control Unit (CU) in a CPU? 1

a. Perform arithmetic operations **b. Interpret instructions and manage data flow**

c. Manage memory storage d. Control input/output devices

iii. Which of the following is not an example of an operating system ? 1

a. Windows b. macOS c. Linux **d. Chrome**

iv. What is the role of a driver in computing ? 1

a. It allows the operating system to communicate with a specific hardware device.

b. It provides a common platform for programs and devices to communicate with each other.

c. It ensures that data is transmitted accurately and efficiently.

d. It identifies unique characteristics of peripheral devices.

v. Which of the following is not an example of a hardware device that requires a driver to function properly with an operating system ? 1

a. Keyboard b. Monitor **c. Processor** d. Printer

vi. What is the main function of an operating system ? 1

a. To allocate and manage computer resources b. To design computer hardware

c. To develop computer software d. To manage computer security

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

i. Which of the following is NOT one of the tasks performed by an operating system when a program is launched ? 1

a. Allocating necessary resources **b. Ensuring programs interfere with each other**

c. Manage and scheduling tasks and processes d. Prioritizing tasks based on importance.

ii. What is the purpose of assigning a unique process ID to a process in an operating system ? 1

a. To prioritize the process b. To manage the state of the process

c. To schedule the execution of the process **d. To identify the process**

iii. What type of memory stores data and instructions that the processors needs to access quickly ? 1

a. Non-volatile memory **b.Volatile memory** c. Secondary memory d.Tertiary memory

iv. How is memory allocated to processes ? 1

a. Static allocation **b. Dynamic allocation** c. Fixed allocation d. None of these

v. Which of the following is an input device ? 1
a. Monitor **b. Keyboard** c. Printer d. Speakers

vi. Which of the following is an output device ? 1
a. Mouse b. Scanner c. Headset **d. Projector**

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

i. Which of the following input devices is used to capture images of physical documents ? 1
a. Scanner b. Mouse c. Keyboard d. Joystick

ii. Which of the following output devices produces hard copies of digital documents ? 1
a. Printer b. Monitor c. Speakers d. Microphone

iii. Which of the following is an example of an input-output device ? 1
a. Printer b. Scanner **c. Touchscreen** d. Speakers

iv. What is the primary function of the CPU ? 1
a. To house the main processor **b. To execute user instructions**
c. To provide connections for other d. To store data and information components of the computer.

v. How are processors classified ? 1
a. Based on their size and weight b. Based on their colour and design
c. Based on their clock speed **d. Based on their price and availability cores and manufacturing technology.**

vi. Why are pen drives popular ? 1
a. Due to their large size **b. Due to their ease of use, portability, and small size.**
c. Due to their ability to connect wirelessly d. None of the above

Q 6. **Answer any 5 out of the given 8 questions (1 x 5 = 5 marks)**

i. What is the result of the expression 8 % 3 ?
a. 2 b. 3 c. 2.67 d. 2.0

ii. Which operator is used to compare if two values are equal in Java ?
a. = = b. = c. != d. None of these

iii. What will be the value of x after the following code: int x=5 ; x +=3
a. 8 b. 5 c. 3 d. 15

iv. Which operator is used to perform logical AND in Java ?
a. && b. || c. ! d. &

v. What will be the value of y after the following code: int y=10; y *=2;
a. 5 b. 10 **c. 20** d. 12

vi. Which operator is used to increment a variable by 1 in Java ?
a. ++ b. -- c. += d. *=

vii. Predict the output of the following code snippet:

```
int x = 5;
System.out.println(x++);
System.out.println(++x);
```

a. 5 7 b. 6 6 c. 5 5 d. 6 5

viii. Predict the output of the following code snippet:

```
String name = "Java";
name.concat(" Programming");
System.out.println(name);
```

a. Java b. Programming c. Java Programming d. The code will not compile

SECTION B: SUBJECTIVE TYPE QUESTIONS

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

Q 7. Write down the different types of verbal communication with examples of each. 2

Ans: Oral Communication – Exchange of information through spoken words.
Example: Face-to-face conversation, telephone calls.
Written Communication – Exchange of information through written words.
Example: Emails, letters, reports.

Q 8. Explain the communication cycle briefly. 2

Ans: The communication cycle is the process of exchanging information between a sender and a receiver. It involves steps like **sender**, **message**, **encoding**, **channel**, **decoding**, **receiver**, and **feedback**, ensuring the message is understood correctly

Q 9. Write all 7 Cs of effective communication. Explain any one. 2

Ans: Clear, Concise, Complete, Correct, Concrete, Courteous, Coherent
Example – Clear: The message should be easily understandable without confusion.

Q 10. What is a team ? Mention some factors which influence team building. 2

Ans: A team is a group of people who work together to achieve a common goal.
Factors influencing team building – Trust, communication, leadership, mutual respect, and clear goals.

Q 11. Define time management. Give examples. 2

Ans: Time management is the process of planning and organizing how to divide your time effectively to complete tasks and achieve goals.
Example: Making a daily schedule, setting deadlines, and prioritizing important tasks.

Answer any 4 out of the given 5 questions in 20 – 30 words each (2 x 4 = 8 marks)

Q 12. What is the main difference between RAM and ROM. 2

Ans: **RAM (Random Access Memory):** Temporary memory used to store data and instructions while the computer is running; data is lost when power is off.
ROM (Read Only Memory): Permanent memory that stores essential instructions for starting the computer; data is not lost when power is off.

Q 13. What are some common uses of pen drives ? 2

Ans: Storing and transferring files such as documents, photos, and videos.
Creating backup copies of important data.

Q 14. Name the different types of operating systems 2

Ans: Batch Operating System, Multiprogramming Operating System, Multitasking Operating System, Real-Time Operating System, Distributed Operating System
Network Operating System

Q 15. What are the various components used to create a GUI front-end interface ? 2

Ans: JLabel – To display text or images., JTextField – To take user input.
JButton – To perform an action when clicked. JRadioButton / JCheckBox – For selection options.,JComboBox – For drop-down lists

Q 16. Write a short note on variables and naming convention for variables. 2

Ans: Variables are named memory locations used to store data that can change during program execution.Naming Conventions: Variable names should start with a letter, use meaningful names, avoid spaces/special characters, and follow camelCase in Java (e.g., studentName).

Answer any 2 out of the given 3 questions in 30– 50 words each (3 x 2 = 06 marks)

Q 17. Explain the concept of refresh in DRAM and how it affects its performance and operation. 3

Ans: In **DRAM (Dynamic Random Access Memory)**, data is stored as electrical charges in tiny capacitors, which leak over time. To prevent data loss, DRAM must be **refreshed** periodically by recharging these capacitors.
Effect on Performance & Operation:
Refresh operations consume time, during which normal read/write operations are paused. This slightly reduces overall performance compared to SRAM (which does not require refresh).Proper refresh ensures data integrity and reliable operation of the memory.

Q 18. What is the role of an operating system in facilitating communication amongst various hardware and software components of a computing device ? 3

Ans: The operating system acts as an **intermediary** between hardware and software, enabling them to work together smoothly.

It provides **device drivers** to translate software instructions into hardware actions.
It manages **input/output operations** so programs can use devices without knowing hardware details.
It coordinates data exchange between CPU, memory, and peripherals, ensuring efficient and error-free communication.

Q 19. Write a java program which takes three numbers as input from the user and display their sum and products. 3

Ans:
```
int num1 = Integer.parseInt(jTextField1.getText());
int num2 = Integer.parseInt(jTextField2.getText());
int num3 = Integer.parseInt(jTextField3.getText());
int sum = num1 + num2 + num3;
int product = num1 * num2 * num3;
jTextField4.setText(String.valueOf(sum));
jTextField5.setText(String.valueOf(product));
```

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)

Q 20. Discuss the advantages and disadvantages of using HDD and SDD as storage devices in a computer. How would you choose between them based on specific needs ? 4

Ans: **Hard Disk Drive (HDD):Advantages:**
Cheaper per GB. Larger storage capacities available.
Disadvantages: Slower read/write speeds., More prone to damage due to moving parts.
Solid State Drive (SSD): Advantages:
Much faster read/write speeds., More durable (no moving parts).
Lower power consumption.
Disadvantages: More expensive per GB. , Limited write cycles.
Choosing Between Them:
Use **HDD** if you need large, affordable storage for files, backups, and media.
Use **SSD** if you need faster boot times, quick file access, and better performance for applications.
For balanced needs, use a **combination** (SSD for OS and apps, HDD for bulk storage).

Q 21. What are the limitations to the amount of RAM that can be effectively utilized in a computer system ? 4

Ans: **Processor Architecture:** A 32-bit processor can typically address only up to **4 GB** of RAM, while 64-bit processors can support much more.
Motherboard Capacity:
The number of RAM slots and maximum memory supported by the motherboard limit total RAM.

Operating System Restrictions:
Some OS versions have limits on how much RAM they can recognize (e.g., 32-bit Windows supports up to 4 GB).
Application Requirements:
If applications are not designed to use large amounts of RAM, extra memory will remain unused.

Q 22. What are storage devices ? What is the difference between the secondary storage and primary storage of computer ? 4

Ans: Storage devices are hardware components used to store data, instructions, and information in a computer, either temporarily or permanently. Examples: Hard Disk, SSD, Pen Drive, RAM

Primary Storage	Secondary Storage
Also called **main memory** (e.g., RAM, Cache).	Also called **auxiliary storage** (e.g., HDD, SSD, CD/DVD).
Stores data temporarily while the computer is running.	Stores data permanently until deleted.
Faster access speed.	Slower access speed compared to primary storage.
Volatile – data is lost when power is off.	Non-volatile – data remains even when power is off.

Q 23. Why is memory allocation in a dynamic manner beneficial for the operating system ?

Ans: **Efficient Use of Memory:** Allocates memory only when needed, reducing wastage compared to fixed allocation.
Flexibility: Programs can request more memory during execution, adapting to varying data sizes.
Multitasking Support: Frees unused memory for other processes, improving overall system performance.
Better Resource Management: Allows the OS to handle multiple applications smoothly by reallocating memory as tasks change.

Q 24. Create a GUI interface in NetBeans IDE which accepts two inputs from the user and calculates all the four arithmetic operations like addition, subtraction, multiplication and division

Ans:
```
int a = Integer.parseInt(txtNum1.getText());
int b = Integer.parseInt(txtNum2.getText());
int sum = a + b;
lblDisplay.setText("Addition: " + sum);
 int diff = a - b;
lblDisplay.setText("Subtraction: " + diff);
int product = a * b;
lblDisplay.setText("Multiplication: " + product);
if (b != 0) {        double result = (double) a / b;
      lblDisplay.setText("Division: " + result);
   } else {        lblDisplay.setText("Cannot divide by zero.");     }
```

***** "ALL THE BEST !" *****