B.K. BIRLA CENTRE FOR EDUCATION

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

PRE MID-TERM EXAMINATION (2025-26)
IT (802) / SUBJECT-05
MARKING SCHEME

Class : XI A/B/C **Duration : 60 mins**
Date : 04-08-2025 **Max. Marks : 25**
Admission No.: **Roll No.:**

Section-A
(Answer any 7 out of 10 MCQs)

1. What does the term "IPO" stand for in the context of computer operations ? 1
(a) Input-Process-Output (b) Input-Output-Program
(c) Instruct-Process-Operate (d) Input-Process-Operate

2. Which storage device uses spinning disks or platters to store data ? 1
(a) Cache Memory (b) SSD (c) Flash Memory **(d) HDD**

3. 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**

4. 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**

5. 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**

6. What is the result of the expression 8 % 3 ? 1
(a) 2 (b) 3 (c) 2.67 (d) 2.0

7. Which operator is used to compare if two values are equal in Java ? 1
(a) = = (b) = (c) equal (d) !=

8. What will be the value of **x** after the following code : int x =5; x+=3 ; 1
(a) 8 (b) 5 (3) 3 (d) 15

9. Which operator is used to perform logical AND in Java ? 1
(a) && (b) || (c) ! (d) &

10. Which operator is used for exponentiation in Java ? 1
(a) ^ **(b) **** (c) ^^ (d) *

SECTION – B
(Answer any 6 out of 10 Short Answer Questions)

11. Compare HDD and SSD in terms of speed and reliability. 2

Ans:

Feature	HDD (Hard Disk Drive)	SSD (Solid State Drive)
Speed	Slower data access and boot time	Much faster data access and quicker boot time
Reliability	More prone to damage due to moving parts	More reliable as it has no moving parts

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

Ans: **RAM (Random Access Memory)** is **volatile memory** used to store data temporarily while a computer is running. Data is lost when the power is turned off.
ROM (Read-Only Memory) is **non-volatile memory** that **stores permanent instructions** required for booting the computer. Data remains even after the power is turned off

13. What technology does an SSD use to store data ? 2

Ans: An **SSD (Solid State Drive)** uses **NAND-based flash memory** technology to store data. This type of memory is **non-volatile**, meaning it retains data even when the power is turned off. It has no moving parts, which makes it faster and more reliable than traditional hard drives.

14. Differentiate between High Level Language and Low Level Language. 2

Ans:

Feature	High-Level Language	Low-Level Language
Ease of Use	Easy to read, write, and understand (similar to human language)	Difficult to understand; closer to binary or machine code
Portability	Portable across different platforms	Not portable; machine-dependent
Examples	Python, Java, C++	Assembly language, Machine language
Execution Speed	Slower execution as it requires translation (compiler/interpreter)	Faster execution as it interacts directly with hardware

15. Define the following terms: (a) Cache Memory (b) Flash Memory 2

Ans: Cache memory is a small, high-speed memory located close to the CPU. It stores frequently accessed data and instructions to speed up processing and reduce the time taken to access data from the main memory (RAM).
Flash memory is a type of non-volatile memory used for storing data. It retains information even when the power is off and is commonly used in USB drives, memory cards, and solid-state drives (SSDs).

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

Ans: In NetBeans IDE, various GUI components (also called Swing controls) are used to design a front-end interface. These components help users interact with the application visually.
Common GUI Components:
JLabel – Displays text or images (used for labels or instructions).
JTextField – Allows users to input single-line text.

17. Write a program in Java that will take two numbers from the users and display the addition of the same. (Note: use Swing controls) 2

Ans:
```
int num1 = Integer.parseInt(textField1.getText());
int num2 = Integer.parseInt(textField2.getText());
int sum = num1 + num2;
resultLabel.setText("Result: " + sum);
```

18. Write a program in Java that will take two numbers from the users and display the greatest between the two numbers. (Note: use Swing controls) 2

Ans:
```
int num1 = Integer.parseInt(textField1.getText());
int num2 = Integer.parseInt(textField2.getText());
if (num1 > num2) { resultLabel.setText("Result: " + num1 + " is greater");}
else if (num2 > num1) {resultLabel.setText("Result: " + num2 + " is greater");}
else { resultLabel.setText("Result: Both numbers are equal");}
```

19. What are the different datatypes in Java ? Name it. 2

Ans: Java has 8 primitive data types: byte, short, int, long, float, double, char, and boolean.
It also includes non-primitive types like String, Array, and Class.

20. What does JFrame allow the user to do ? What is the default name of jFrame ? 2

Ans: JFrame is a class in Java Swing that allows the user to create a window-based GUI application. It acts as the main window where you can add buttons, text fields, labels, and other components to design interactive interfaces. It provides: Title bar, Minimize, maximize, and close buttonsArea to add GUI components

SECTION – C
(Answer any 2 out of 4 Long Answer Questions)

21. List all the characteristics of a Computer. Describe any three. 3

Ans: List of Characteristics:
Speed 2. Accuracy 3. Automation 4. Storage 5. Versatility 6. Diligence 7. Multitasking 8. Communication

Speed:
Computers can process data and perform complex calculations at an extremely high speed. Tasks that take hours manually can be completed in seconds.

Accuracy:
Computers perform operations with a high degree of accuracy. Errors usually occur due to incorrect input or programming mistakes, not because of the machine itself.

Storage:
A computer can store large amounts of data and retrieve it quickly whenever needed. It supports both temporary (RAM) and permanent (Hard Drive, SSD) storage.

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

Ans: **Dynamic RAM (DRAM)** stores data using tiny capacitors that gradually lose their charge over time. To retain data, **DRAM must be refreshed periodically**—this process is called **"refresh."** Explanation:
Refresh means recharging the capacitors to maintain the stored data.
This refresh happens automatically, usually every few milliseconds.
Effect on Performance and Operation:
During the refresh cycle, the DRAM **cannot be accessed**, which causes a **slight delay** in data processing.
Frequent refreshing makes DRAM **slower than SRAM**, which does not need refreshing.
Conclusion:
Refresh in DRAM is essential for data retention but slightly impacts performance due to temporary unavailability during refresh cycles.

23. 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. 3

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.");
   }
```

24. Define variable ? Name the rules for naming it. Give example. 3

Ans: A **variable** in Java is a **named memory location** used to **store data** that can change during program execution.
Rules for Naming a Variable in Java:
The name must **start with a letter** (A–Z or a–z), a **dollar sign** $, or an **underscore** _.
After the first character, digits (0–9) can also be used.
Variable names are **case-sensitive** (score and Score are different).
No spaces or special characters allowed (except $ and _).
Cannot use **Java reserved keywords** (like int, class, public, etc.)
int age = 18;
String studentName = "Ravi";

25. What you understand by Operator ? List the different types of operators. Given example. 3

Ans: An **operator** in Java is a **symbol** that performs a specific operation on one, two, or more operands (variables or values) and produces a result. Operators are used to perform **arithmetic, logical, relational**, and other operations in a program.

1. Arithmetic Operators 2.Relational Operators 3. Logical Operators 4. Assignment Operator
5. Unary Operators

```
int a = 10, b = 5;
int sum = a + b;         // Arithmetic
boolean result = a > b;  // Relational
a++;                     // Unary
boolean check = (a > 5 && b < 10);
```

******* BEST OF LUCK *******