



'समानो मन्त्रः समितिः समानी'

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 4th Semester Examination, 2023

**GE2-P2-COMPUTER SCIENCE (44)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Answer all questions with internal choices.*

**The question paper contains GE-4A and GE-4B.  
The candidates are required to answer any *one* from *two* courses.  
Candidates should mention it clearly on the Answer Book.**

**GE-4A**

**PROGRAMMING IN JAVA**

**GROUP-A**

**Answer any *five* questions from the following**

1×5 = 5

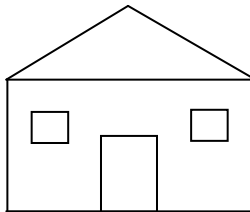
1. What is byte code?
2. What is scope?
3. What is the utility of a dynamic array?
4. What are constructors?
5. Expand AWT.
6. What is method overriding?
7. What is Autoboxing?
8. What is garbage collection?

**GROUP-B**

**Answer any *three* questions from the following**

5×3 = 15

9. Discuss logical and bitwise operators with the help of examples.
10. Discuss string equality with the help of an example.
11. Write a program in JAVA to demonstrate the use of method overloading.
12. Discuss dynamic method dispatch with the help of an example.
13. Write an applet to display the following figure:



**GROUP-C**

**Answer any *two* questions from the following**

10×2 = 20

14. What are data types? Discuss different data types used in JAVA. 2+8
15. Discuss the principles of object oriented programming. Discuss semantic and syntax differences between C++ and JAVA. 5+5
16. What is a package? Explain the use of 'util', 'lang', 'io' and 'net' packages. 2+8
17. Explain different swing components of JAVA foundation classes such as labels, buttons, text fields, layout managers, menus, events and listeners.

**GE-4B**

**PYTHON PROGRAMMING**

**GROUP-A**

**Answer any *five* questions**

1×5 = 5

1. What are the key features of Python programming?
2. What is the difference between compiled and interpreted languages?
3. How pass statement is different from a comment?
4. What are mutable and immutable types?
5. Define modules in Python.
6. What do you understand by the term namespace in Python?
7. Define package in Python.
8. Define pickling and unpickling in Python.

**GROUP-B**

**Answer any *three* questions**

5×3 = 15

9. What are relational operators used in Python? Explain.
10. What is the lambda function? Explain with an example.
11. What is len() function and explain how it is used on strings with an example.
12. Write a Python program to find the given year is leap year or not.
13. Write a few methods that are used in Python Lists.

**GROUP-C**

**Answer any *two* questions**

10×2 = 20

14. Discuss the basic Tuple operations with examples.
15. Explain call by value and call by reference in Python.
16. Explain the different control statements in Python with example.
17. Describe the syntax for the following function and explain with an example:  
(i) abs()      (ii) max()      (iii) pow()      (iv) len()      (v) sort()

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