QP CODE: 25805164

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Reg No : .....

Name : .....

INTEGRATED M.Sc DEGREE EXAMINATION, NOVEMBER 2025

Seventh Semester

INTEGRATED M.Sc BASIC SCIENCE-PHYSICS

CORE - IPH7CR05 - COMPUTATIONAL PHYSICS

2021 Admission Onwards

1C974B8A

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain the importance of debugging in programming.
2. Explain the structure of a C++ program with an example.
3. Define a variable. Explain the rules for naming variables in C++.
4. Explain the difference between one-dimensional and two-dimensional arrays.
5. When is the if .... else statement used ? Give the syntax for the if ...else statement.
6. Define encapsulation and abstraction in object-oriented programming.
7. What are member functions in C++? Provide examples.
8. Specify the four control signals commonly used by the 8085 microprocessor.
9. Specify the function of data bus and the direction of the information flow on the address bus.
10. Explain instruction cycle.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write a program to count the occurrences of each character in a string.
12. Write a program to find the sum of the diagonal elements of a matrix.
13. Explain the assignment operators in programming. Enlist the operators along with their meanings.
14. Write a C++ program to calculate the time period of oscillation of a simple pendulum using loop.
15. Write a program to calculate the power of a number using recursion.

16. Explain the use of arrays with objects in C++ with an example program.

17. Write a program to add A2H and 74H. Specify the contents of accumulator and the status of the flags S, Z, P, AC and CS.

18. Discuss fetch operation and execute operation.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Five numbers denoted by variables A,B,C,D and E are supplied as the input. Draw a flowchart to print these numbers in descending order of magnitude

20. Explain the concept of functions in C++. Discuss the function declaration, definition, arguments, return values, and variable scope.

21. What are the various categories of data types? Write an account of user defined data types. Use the user defined data types to declare a complex number of the form (a + i b) and write a C++ program to perform the arithmetic operations of addition, subtraction and multiplication.

22. Draw the pin configurations of intel 8085 microprocessor.

(2×5=10 weightage)