QP CODE: 25800652

25800652

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, FEBRUARY 2025

Seventh Semester

INTEGRATED MSC BASIC SCIENCE-PHYSICS

CORE - IPH7CR05 - COMPUTATIONAL PHYSICS

2021 Admission Onwards

141FE814

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write a brief note on low-level programming languages.
2. What is the purpose of header files in C++?
3. Discuss the significance of comments in C++ programs.
4. Write a program to sort an array in descending order.
5. Discuss the scope of variables in C++ with examples.
6. Define recursion. Write a recursive program to calculate the sum of the first N natural numbers.
7. What are member functions in C++? Provide examples.
8. What are the general purpose registers in 8085 microprocessor?
9. What is the function of INTA signal?
10. What is T-state?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. 50 students appear for an examination. The students roll number, name and marks are the input data. Draw a flowchart to calculate and print the percentage marks obtained by each student.
12. What are variables and variable types in programming ? What are the rules for constructing variable names?
13. What do you mean by initializing an array? What are the various ways of initializing an array?

14. Write a program to count vowels and consonants in a string.

15. Define abstraction. How is it achieved in object-oriented programming?

16. What are the drawback of operator overloading? How can it be removed ?

17. If the 8085 add 87H and 79H, specify the contents of the accumulator and status of the sign, zero and carry flags.

18. Discuss instruction cycle, machine cycle and state.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Write a program to implement a class for complex numbers and perform basics arithmetic operations of addition, subraction and multiplication on them.

20. Explain the different branching and looping instruction in C++ with suitable examples.

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. Explain the architecture of intel 8085 microprocessor.

(2×5=10 weightage)