

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2015****Sixth Semester****Core Course—COMPUTATIONAL PHYSICS**

[Common for Model – I B.Sc. Physics, Model – II B.Sc. Physics and B.Sc. Physics—E.E.M.]

Time : Three Hours

Maximum Weight : 25

**Part A (Objective Type Questions)**

*Answer all questions.*

*Each bunch of four questions carries a weight of 1.*

**Bunch I**

1. A computer program that translates an assembly language program from mnemonics to the binary machine code of a computer :
  - (a) Compiler.
  - (b) Interpreter.
  - (c) Assembler.
  - (d) None of these.
2. A state member function in C++ can be called by using \_\_\_\_\_.
  - (a) Class name.
  - (b) Object name.
  - (c) User defined name.
  - (d) None of these.
3. The address bus is :
  - (a) Unidirectional.
  - (b) Bidirectional.
  - (c) Tridirectional.
  - (d) None of these.
4. \_\_\_\_\_ is used as a memory pointer for the stack memory.

**Bunch II**

5. The data to be operated on is called :
  - (a) Operation code.
  - (b) Operand.
  - (c) Instruction.
  - (d) None of these.
6. Which one of the following are the manipulators in C++ ?
  - (a) Endl.
  - (b) Malloc.
  - (c) Const.
  - (d) Void.

**Turn over**

7. \_\_\_\_\_ is an exist-controlled corp :
- (a) While. (b) do — while.  
(c) For. (d) None of these.
8. Second order R-K method is known as \_\_\_\_\_.

**Bunch III**

9. D flip-flop is called a :
- (a) Transparent latch. (b) Priority encoder.  
(c) Binary decoder. (d) None of these.
10. Which header file contains the definition of class string ?
- (a) <Math.h>. (b) <stdio.h>.  
(c) <string.h>. (d) None of these.
11. The programming technique used to instruct the microprocessor repeat tasks is called as :
- (a) Fetching. (b) Looping.  
(c) Cycling. (d) All of the above.
12. Insulation of date from direct access by the program is called :
- (a) Date hiding. (b) Date abstraction.  
(c) Date encapsulation. (d) None of these.

**Bunch IV**

13. The symbol that designates a comment in C++ is :
- (a) % . (b) // .  
(c) & . (d) # .
14. Which one of the following is not an output device of a computer system ?
- (a) Scanner. (b) Monitor.  
(c) Speaker. (d) Plotter.
15. "India" is an example of a \_\_\_\_\_.
- (a) String constant. (b) Variable.  
(c) Function name. (d) Character.
16. By default, members of the class are \_\_\_\_\_.
- (a) Public. (b) Private.  
(c) Protected. (d) None of these.

(4 × 1 = 4)

**Part B (Short Answer Questions)**

*Answer any five questions.  
Each question carries a weight of 1.*

17. Define address bar.
18. Differentiate between Program counter and Stack pointer.
19. What is a reference variable ?
20. What do you mean by dynamic initialization of variables in C++ ?
21. What is structure in C++ ? Give the syntax.
22. What is an exit controlled loop ?
23. State and define the flags of 8085 microprocessor.
24. How can you declare the variables inside a class in C++ ?

(5 × 1 = 5)

**Part C (Short Essay/Problems)**

*Answer any four questions.  
Each question carries a weight of 2.*

25. Discuss about the tri-state devices.
26. Explain the differences between a microprocessor and a microcomputer.
27. What is friend function ? Write the characteristics of the friend function.
28. Differentiate between call by reference and call by value in C++.
29. Write short notes on logical and branching operations of 8085 instruction set.
30. Write about the addressing modes of 8085 instruction set.

(4 × 2 = 8)

**Part D (Essay Questions)**

*Answer any two questions.  
Each question carries a weight of 4.*

31. Explain microprocessor architecture and its operations ?
32. Write a C++ program to perform various string operations such as read, display, copy and concatenate using class.
33. Find out root  $X^3 - 3X - 5 = 0$  by the method of false position.

(2 × 4 = 8)