

**E 3411**

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Reg. No.....

Name.....

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH/APRIL 2012**

**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**

*Answer all questions.*

*Objective type questions—weight 1 for each bunch.*

**Bunch I**

1. The fixed set of instructions in the form of binary patterns for a microprocessor is called :  
(a) mnemonics. (b) syntax.  
(c) machine language. (d) assembly language.
2. The primary function of memory interfacing is that the microprocessor should be :  
(a) to read and write into. (b) able to select the chip.  
(c) to identify the register. (d) to enable the buffer.
3. A memory is made up of a large number of :  
(a) bytes. (b) cells.  
(c) chips. (d) none of these.
4. Second order R-K method is known as ———.

**Bunch II**

5. The 8085 is a microprocessor with :  
(a) 80 bit word length. (b) 85 bit word length.  
(c) 8 bit word length. (d) 16 bit word length.
6. The 8085 has six general purpose registers to store :  
(a) 8 bit data. (b) 6 bit data.  
(c) 16 bit data. (d) 4 bit data.
7. When the *continue* statement is executed with in a loop, the control goes to :  
(a) the end of the program. (b) the beginning of the program.  
(c) next statement in the loop. (d) the top of the loop.

**Turn over**

8. Simpson's rule is accurate only if the number of elements is ———.

Bunch III

9. The address bus is :
- (a) bi directional.
  - (b) unidirectional.
  - (c) peripheral.
  - (d) all the above.
10. The data transfer instructions copy data from a source into a destination :
- (a) without modifications.
  - (b) with modifications.
  - (c) without modifying the contents of the source.
  - (d) none of these.
11. Single out the valid one in C++ :
- (a) structures cannot have functions as members.
  - (b) class members are public by default.
  - (c) classes cannot have data as public members.
  - (d) all the above.
12. Least square approximation is a method for ———.

Bunch IV

13. The result of an operation is stored in the :
- (a) register.
  - (b) flag.
  - (c) accumulator.
  - (d) flag register.
14. The programming technique used to instruct the microprocessor to repeat tasks is called :
- (a) fetching.
  - (b) looping.
  - (c) cycling.
  - (d) all the above.
15. The friend functions are used in situations where :
- (a) we want to exchange data between classes.
  - (b) dynamic binding is required.
  - (c) we want to create versatile overloaded operators.
  - (d) none of these.
16. If a function  $f(x)$  is continuous between  $a$  and  $b$  and  $f(a)$  and  $f(b)$  are of ——— signs, then there exists at least one ——— between  $a$  and  $b$ .

(4 × 1 = 4)

**Part B**

*Answer any five questions.*

*Short answer questions—weight 1 each.*

17. State differences between a MP and CPU.
18. Why is the data bus bidirectional ?
19. What is a machine cycle ?
20. Define opcode and operand.
21. What is an optical scanner ?
22. What is a reference variable ?
23. What are objects ? Explain.
24. State trapezoidal rule.

(5 × 1 = 5)

**Part C**

*Answer any four questions.*

*Short essay / problems, weight 2 each.*

25. Distinguish between assembly language and machine language.
26. Bring out the instruction set of 8085 for various registers.
27. Write instructions to load the hexadecimal number 65H in register C and 92H in the accumulator A. Display the number 65H at PORT 0 and 92H at PORT 1.
28. Write a macro that obtains the largest of three numbers.
29. What is a friend function ? What are the merits and demerits of using friend function ?
30. What is a class ? How does it accomplish data hiding ?

(4 × 2 = 8)

**Part D**

*Answer two questions.*

*Essay—weight 4 each.*

31. Discuss the functional block diagram of 8085.
32. By Newton – Raphson method obtain the solution for the equation  $\sin x - 2x + 1 = 0$ .
33. Write a C++ program to check whether the given number is palindrome.

(2 × 4 = 8)