Reg. No...Name...

B.Sc. DEGREE END SEMESTER EXAMINATION MARCH 2017
SEMESTER – 6: PHYSICS (CORE COURSE)
COURSE: **U6CRPHY9 –: COMPUTATIONAL PHYSICS**
(For Regular - 2014 Admission)

Time: Three Hours   Max. Marks: 60

PART A
(Very short answer questions)
(Answer **all** questions. Each question carries 1 Mark)

1. How many 8 bit general purpose registers are there in µp 8085? List them.
2. What is the use of ALE signal in µp 8085?
3. Explain the operation carried out by 8085 µp on the instruction ADD B
4. Why data bus is bidirectional for 8085 microprocessor?
5. Write a C++ program to print 'Hello World'.
6. What are various fundamental variable (Data) types available in C++?
7. What is the advantage of False Position method over Bisection method?
8. For Simpson's integration, if the tabulated interval h is halved, what factor will the error reduce?
9. What is the advantage of Simpson's method over Trapezoidal rule?
10. What are manipulators in C++?

$$(1 \times 10 = 10)$$

PART B
(Short answer)
Answer **any seven** questions. Each question carries 2 Marks

11. Specify the function of the address bus and the direction of the information flow on the address bus for µp 8085
12. Write a C++ program to find the remainder when one number is divided by other.
13. What is the syntax of *for* loop in C++ ?
14. State when *do* loop is preferred over *While* loop in C++
15. Explain the use of getche() library function in C++
16. Proper Choice of the initial guess is very important in Newton Raphson Method. Why?
17. Explain graphically the trapezoidal rule for numerical integration

18. Explain Euler's method for numerically solving differential equations
19. Define T-state for a microprocessor.

<div align="right">(2 x 7 = 14)</div>

PART C
(Problem/Derivations)
Answer **any Four** question. Each question carries 4 Marks

20. Explain the Addressing modes of 8085 microprocessor with an example.
21. Write a program for µp 8085 to subtract two 8-bit numbers and store the result in a memory location
22. Write a C++ program to find whether the given number is a prime number.
23. Integrate the function tabulated below using Simpson's rule.

x	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0	0.1	0.2	0.3
f(x)	4	2	3	8	4	-2	2	3	5	8

24. Write down the algorithm for computer implementation of false position method.
25. Write a short note on interrupts of 8085 microprocessor

<div align="right">(4 x 4 = 16)</div>

PART D
(Long answer questions)
Answer **any Two** question. Each question carries 10 Marks

26. Discuss the instruction set of 8085 µp.
27. Write down the C++ syntaxes for *switch* statement, *structure* specifier and *class* specifier. Explain each one with examples.
28. Explain bisection method. Write a C++ program to solve the equation $x^3-3x-5=0$ using bisection method.
29. Describe the second order Runge-Kutta method for solving differential equations. Also write down the algorithm for computer implementation

<div align="right">(10 x 2 = 20)</div>

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