



Reg. No. : .....

Name : .....

**Sixth Semester B. Sc. Degree Examination, April 2019**  
**First Degree Programme under CBCSS**  
**PHYSICS**  
**Core Course XII**  
**PY 1644 – Digital Electronics and Computer Science**  
**(2014 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions, **each** carries **1** mark.

1. Convert the binary number 1011010 to hexadecimal.
2. What is a tristate logic gate ?
3. What is Karnaugh map ?
4. Mention the function of control unit in a digital computer.
5. Define variable and constant in C programming.
6. What is nested loop in C programming ?
7. What is logical operators in C programming ?
8. Explain the instruction scanf () used in C programming.
9. Mention any two string functions used in C programming.
10. How can we make sure that the Newton-Raphson method converges faster ?  
**(10×1=10 Marks)**

SECTION – B

Answer **any eight**, **each** carries **2** marks.

11. Explain the following conversion with suitable example.  
a) Binary to Decimal      b) Hexadecimal to Binary
12. Implement the AND and OR gates using the NAND gate.
13. What are flip-flops ? Give an example.
14. Explain a master slave JK flip flop.



15. Explain a half adder circuit.
16. Explain the purpose of the additional input on the gated RS flip-flop.
17. What is volatile memory ?
18. What is application software ?
19. What is a pointer in C ?
20. Which are Bitwise Operators in C ?
21. What is a flash memory ?
22. Define interpolation. **(8×2=16 Marks)**

**SECTION – C**

Answer **any six**, each carries 4 marks.

23. Solve using 2's complement method  $(1111)_2 - (1100)_2$ .
24. Explain with figure an 8 bit adder-subtractor.
25. What is the principle of storing digital information on an optical disk ?
26. How does the fopen() works ? Explain it with example.
27. Describe the different data types used in C language.
28. Briefly explain the basic Boolean laws.
29. Compare 'while' loop and 'for' loop used in C programming with example.
30. Write a C program to calculate factorial of a given number.
31. Give the algorithm for linear regression. **(6×4=24 Marks)**

**SECTION – D**

Answer **any two**, each carries 15 marks.

32. Describe briefly the structure of C programming.
  33. With neat sketches explain
    - i) SR flip-flop
    - ii) JK flip-flop
  34. Describe the construction and working of a
    - i) SRAM
    - ii) DRAM
  35. Briefly explain the Runge -Kutta method to obtain solution to the differential equation. **(15×2 =30 Marks)**
-