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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.

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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-subtracter.
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)